

A SURVEY WITH OPTIONS FOR THE
RESTRUCTURING AND PRIVATIZATION OF THE
POWER SECTOR (ENERGY AUTHORITY)
OF THE
REPUBLIC OF MONGOLIA

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EXECUTIVE SUMMARY

The Government of Mongolia (GOM) has invited expertise to prepare the basis for the privatization of the Energy Authority (EA), a State-owned enterprise (SOE). The EA operates the electric power sector and represents the State in matters of regulations. The Government's intent is to privatize the sector and invite foreign investors. In order to prepare for the process of divestiture, the GOM recognizes the need of having to choose between various options of divestitures based on various power sector organizational and structural models within a short time frame. USAID has been asked to provide assistance in preparing for this decision-making and assistance to enable the GOM to enter into proper negotiations with potential private investors for the sale of assets. The GOM, furthermore, is interested in ensuring that in the post-divestiture period no major legal and/or regulatory obstructions would be faced by the industry.

The request for USAID assistance had the following objectives:

- < devising options for the restructuring the energy sector;
- < determining the proper role of foreign investment;
- < defining needs for legal reform in the energy sector, specifically modifications to the Energy Law;
- < designing improved regulatory practices;
- < assisting the Government expert groups in the decision-making on these issues.

The Government, or more specifically the Ministry of Infrastructure Development (MID), has developed a restructuring design. This design is similar to the "weak grid" model described in this report, whereby the transmission grid and dispatch serve only a carrier role but remains in Government ownership. All other assets are eligible to be sold to investors, mostly foreign, as domestic savings are inadequate to absorb any of the assets.

The restructuring plan is slated for presentation to Parliament by the end of September. Several issues remain outstanding though, specifically the much needed energy policy, revision to the existing energy law, the regulatory framework and the price (tariff) setting mechanisms. The process is on fast track but caution must be exercised in not designing a system of industry structure that could be difficult to readjust later especially in view of the absence of an Energy Policy, an updated Energy Law, a regulatory process, and a regulatory body.

The MID has stated that it has the lead role in this process including all aspects of reform mentioned above. The MID is not versed, however, in the process and procedures of privatization, that is the purview of the State Property Committee (SPC). Irrespective of which agency will execute the restructuring and privatization, issues remain in regard to asset valuation of the companies to be formed from the existing Energy Authority (now also serving the regulatory functions except for price-setting), the process of allocating assets, the determination of shareholder structure, capitalization, and foremost, assumptions about the nature of potential investors' interests and expectations. A case in point is the tariff structure, that still emulates former command economy versions, and one that needs major revision prior to negotiations on assets sales so as to neither jeopardize the market value of assets to be divested nor to make it

difficult to establish a fair and transparent structure *ex post facto*.

The review of the industry indicates serious problems with cash flow in the power industry due to the problems with non-payments from mostly industrial customers, particularly the Erdenet copper mine. The operational system is in need of refurbishment at every level and its delay has caused increasing strain on the performance in generation and distribution of power and in the distribution of heat. The shortfall of cash also affects readiness of the system for the winter peak heating season for reasons of delayed fuel purchases, although no outages are expected in electricity supply. As neither the Government's budget, nor domestic investor can afford to invest in rehabilitation of the system, the urgency of sale is real.

This report examines this industry by reviewing current economic and financial conditions, offers models for restructuring, an outline for a governmental energy policy, suggestions for the revision of the legal framework and draft legislation for functions of a regulatory body. In-depth development of regulations, the establishment of a regulatory agency, tariff-setting mechanisms are much needed by the Government and assistance would be welcomed. In addition, assistance in restructuring processes and preparing for the bidding and/or negotiations process are clearly needed.

BACKGROUND

Mongolia's development into a market economy is heavily dependent on a well-functioning infrastructure. A significant part of this infrastructure is the electric power system which also is one of the largest contributors to the GDP. On account of many years of delayed investments in renovating aging facilities and major problems with receivables, the supply of power and heat have been seriously jeopardized resulting in outages and insufficient service to the urban population. The power system needs rehabilitation urgently. The problem has been recognized for some time by the Government of Mongolia (GOM) and non-governmental institutions (such as the Asian Development Bank, the World Bank, the Japanese OCEF, etc.) have, to the extent possible, provided either donor funds or where the Government could afford it, provided loans for the rehabilitation of the sector. The amounts, however, have not been commensurate with the scale of problems on the technical side of the issues and have addressed neither inter-company debts nor non-payment problems by customers.

As the GOM's budgetary restrictions do not allow recapitalization of the industry, the GOM has looked for other means to ensure that the power sector would not fail and compromise the development of the nascent market economy. The solution put forth has been to privatize the power sector at least to the extent of the Central Energy System (CES) serving the capital, Ulan Bator, where most of the problems exist and which affects a large segment of the population and most of the manufacturing industries.

This report reviews the status power sector and examines its problems, then offers models for its restructuring and privatization in full cognizance that the Government is also preparing its version. The report also examines the corollary need for revised legislation and regulations, together with the need for establishing a regulatory body taking over functions carried out to date by the power company, inclusive of a tariff structure reform. The report, furthermore, discusses missing provisions of a governmental energy policy that need to be considered in addition to the master plans existing for the energy and coal sectors.

ENERGY POLICY

The absence of an energy policy signifies that the GOM has not undertaken a survey of its energy sector, has not developed integrated concepts and options to develop the sector and has no forecasting methods by which to judge future opportunities and shortcomings. The energy sector, comprising not only the power industries, but also petroleum exploration and production, renewable energy developments and the users of energy in all its forms, is a complex and very important segment of the national economy. Governments develop such policies to allow them to promote needed or hinder unwanted development, to aid forming regulations, to deal with force majeure events, to promote conservation and efficiency and to assist in reaching or complying with international agreements.

To rectify this deficiency, an outline of an energy policy is offered without elaboration of each of the topics. It is intended to demonstrate the breadth of issues confronting the energy sector and

the Government's policy formulation and oversight responsibility. It takes into account additional legislation, not mentioned above, particularly the Petroleum Law. In the context below, energy means all forms of energy, and not just electricity.

General policies

- Clear separation of the Government's policy-making and regulatory roles from its ownership role;
- Survey of energy supply and demand in all sectors that generate, transmit or use energy.
- Understanding energy markets and the potential for marketing;
- Setting goals for the energy industry to be self-financing and eliminating the State's intervention in the sector (i.e., direct, hidden and cross-subsidies);
- Energy supply diversification and reduction of import dependence;
- Projecting changes in the intensity of energy consumption and energy switching in an improving economy (e.g., with reference to inefficient and polluting coal);
- Gradual conversion to clean energy;
- Physical interconnections and their international trade and commercial arrangements;
- Fuel choices and supply contract terms;
- Stockpiling crude oil and natural gas for emergencies and force majeure conditions;
- Promotion of renewable energy development through proper tax incentives or price-setting;
- Adaptation of international standards and policies and harmonizing the energy policy with international commitments (e.g., Convention on Climate Change, Helsinki Protocol on sulfur emissions).

Legislation and regulations

- Enactment of internationally acceptable energy sector laws and related regulations;
- Ensuring that anti-monopolistic practices in the petroleum industry are kept in check, including in the segment known as natural monopolies;
- Preventing collusion (e.g., unwanted mergers, acquisitions - antitrust legislation);
- Providing for a legal framework for streamlined investment in the energy sector without the possibilities of voiding existing agreements or licenses through renewed reviews;
- Preventing unfair practices and ensuring quality of service through consumer protection legislation;
- Safety measures in regard to the generation, transmission, distribution of energy and in disposing of wastes;
- Introduction of international standards and certification in equipment manufacturing, use and maintenance procedures;
- Elimination of regulatory risk that could affect the private (or privatized) industries.

Economics, finances and trade

- Liberalization of trade in energy commodities;
- Initial and continual appraisal of the financial viability of the industry;

- Reduction of the burden on Government providing finances and guarantees to the energy sector for uninterrupted operations;
- Adopting concepts on economics of supply and demand (demand-side management, economic efficiency determinations, etc.);
- Amortization of past investments and setting rational depreciation schedules;
- Improved collection rates from customers through enforcement of service termination in case of non-payment;
- Reforming the pricing structure of energy carriers;
- Undistorted and transparent rate-making procedures with reversal of large customers paying more for energy use than small ones (distinguishing industrial, commercial and residential consumer classes);
- Attraction of foreign capital for investment in capital-intensive projects;
- Free and open trade and secure framework for investment;
- Preparation and control of energy pricing mechanisms that affect the public with definition of cost criteria (exclusive of commercial arrangements);
- Publicizing energy prices and future price increases;
- Introduction of non-punitive taxation and royalty regimes;
- Shifting budgetary outlays for energy-related transport, environmental protection, etc., to the consumer;
- Adoption of international accounting standards (IAS).

Conservation, efficiency and the environment

- Use of conservation and efficiency measures in energy forecasting, power generation expansion plans, household and industrial energy conversions, etc.;
- Adoption of flexible emergency measures (including queuing, strategic reserves);
- Minimizing pollution in addition to improved protection of the environment with introduction of emission standards and adaptation of regular emission inspections;
- Evaluation of past environmental damage (needed for rectification, definition of preventive measures and discounts on investments);
- Providing financial incentives (preferential loans, pricing or tax breaks) for energy conversions, efficiency, conservation, metering, utilization of waste;
- Enforcement of energy conservation measures in new construction, appliances, etc.;
- Energy audits;
- Promoting energy research and development (innovation);
- Public participation in major energy facility siting.

Institutional structure, management and information

- Evaluating causes of declining energy production in terms of their interdependence;
- Introducing management techniques and corporate governance;
- Transformation and corporatization of energy sector enterprises;
- Promotion of internationally accepted accounting procedures;

- Requiring business plans, cost-structure analyses, audits for price setting purposes;
- Promoting cooperation among and coordination of energy market participants;
- Consumer education;
- Consumer participation in energy pricing (public hearings);
- Paring unnecessary social services costs.

The list of conventional energy policy topics is intended to demonstrate that, once a thorough review of the energy sector has taken place and policies have been set about the future expectation about the performance of these industries, the sharing of the responsibilities between the public (tax-supported) system and the private enterprises can be more clearly delineated. Thus, most of these issues are not separable from privatization policies discussed subsequently. Furthermore, the policy establishes the respective responsibilities of the Government and the energy industry companies alike in the context of both domestic and international dependencies.

It would be important for the GOM to develop a detailed and comprehensive energy policy for Mongolia. In formulating an energy policy, interrelations between the energy sector and several other policies that aim to accomplish *economic deregulation* become clearer. Among these are foreign trade reform, price reform, tax reform and financial sector reform. Existence of a policy is also helpful in guiding development of new legislation or revising existing laws by providing the macroeconomic policy framework for the legal system.

THE LEGAL FRAMEWORK

The legal framework for restructuring and privatizing State-owned enterprises (SOEs) is explicit in the Law on State and Local Property of August 1, 1996 and in the Program for Privatization of State Property (Government Resolution 160 based on Article 33 of the Law on State and Local Property of July 2, 1997) . The legal basis for the operation of the power industry is framed in the Energy Law. In addition the following acts have relevance to the matter of operating an enterprise in which foreign investment in present:

The Civil Law (the civil code)

The Business Entities Law

The Partnership and Company Law and its revision as the Law on Companies (draft)

The Law Prohibiting Unfair Competition of July 5, 1993

The Investment Law of July 1, 1993

The Law on Investment of July 1, 1993 (under revision - see below)

The Consumer Protection Law

The Customs Law

The Customs Tariff Law

The Securities Law

The Bankruptcy Law of July 1, 1991.

Of the list, only three legislative acts are discussed in this report: the Law on State and Local Property together with the Program for Privatization of State Property (Government Resolution 160), the Law Prohibiting Unfair Competition and the Investment Law.

Laws Pertinent to Privatization

The principal legislation guiding the process and procedures of the divestiture of the State's interest in State-owned enterprises (SOEs) is the *Law on State and Local Property*. The Act sets uniform rules for the management of State-owned tangible and intangible property, including land, forests, natural, water and mineral resources, and cultural resources. It sets out reporting, inspection and internal controls requirements on physical and financial assets for the SOEs. This act also established the State Property Committee (SPC), whose authority, among others, is to inventory and register assets, supervise use of property, render professional and methodological assistance in management of local property, transfer properties, appoint representatives to the SOEs, corporatize, and organize and conduct the process of privatization, including valuations, sale, transfer and liquidation of state-owned property, by auctions and tenders. The SPC also has powers to reorganize, merge or dissolve firms. Tenders may be open or closed (limited). Conditions under which limited tenders are called for is permitted when it is judged that there is a need for investment in or technology transfer to an SOE in order to permit the firm to "maintain the profile and increase efficiency". Public utilities are undoubtedly in this category for reasons that they cannot be liquidated, their efficiency must be improved and they need infusion of new capital for rehabilitation and operations.

The Act also allows privatization through sale of share certificates, carried out after reorganization of the firm. Shares may be sold to the public in part or whole, or none at all. The Act is quite contemporary in including such concepts as "golden shares", and establishes well conceived procedures for registry, reporting, inspection, assets protection and management, accounting and contracting with new owners. Furthermore, provisions exist for management contracts in case of leasing State-owned property. In practice, the SPC had streamlined the procedures subsequent to passage of the Act based on the governmental resolution (No. 160) that defined "economic competition based on market principles in order to avoid bureaucracy, collusion and corruption" to allow selection of assets, define rational ownership structure, attract foreign investment, determine prices of shares and assets to be sold and identify new owners. The process is simplified: sale of small enterprises by the so-called "English" auctions (highest bidder wins) and sale of large enterprises by means of sealed-bid auctions (where other conditions besides the financial offer are taken into account). The latter is based on market clearing, control, reservation and auction price mechanisms. Assets belonging to both the central and local governments are eligible for disposal. If assets are not sold during the first round, their value is re-examined and the assets are offered once more. After the second round a zero value is declared and the assets are liquidated.

The process is streamlined¹. For private investors, there is assurance of no ambiguity in the procedures or the speed with which the Government intends to transform the economy.

The SPC's role in domestic privatization is well founded. Less discernible is the case when foreign investment is contemplated, especially in key, i.e., strategic industries. The case is point

¹ Enkhbold, Z., 1997, Mongolian privatization policy and methods of implementations, 4p.

is the future of the Energy Authority (EA) should it be sold fully or partially to foreign investors. Current understanding is that the Minister of Infrastructure Development has reserved the right of conducting restructuring and privatization of the power industry (the EA) of Mongolia as that organization operates under purview of that Ministry.

Investment Law

Foreign investment in Mongolia has been governed by the *Investment Law* of 1993. Foreign investment is defined as 20% or more foreign capital in a business entity. The provisions cover wholly-owned and joint venture businesses, shares and other securities (a stock market is functioning), and acquisition of rights to exploit and process mineral resources. On account of recognized needs of foreign investors for protecting their interests in tangible and intangible property, including movable and immovable property, mortgages, property rights, shares, securities, promissory notes, copyright, patents, industrial designs, intellectual property (as well as rights to explore for and exploit minerals), the law is currently being redrafted. New provisions specifically address the treatment and protection of foreign investors in regard to possession, use and disposal of their assets, compensation for losses due to illegal acts by State agencies and officials, and the right to lease, purchase and own, and use land supporting an investment activity. The current Act already permits expatriation of profits and dividends and proceeds from sale of assets and securities. The draft revision of the Act plans to set up a National Investment Board with powers to encourage and approve foreign investment, prepare accession to multilateral investment agreements, provide assistance vis-a-vis other government agencies, conduct advertising and public relations, invite offers to tenders, and administer fiscal incentives granted by Parliament. This clause appears to introduce another organization into the process of selling strategic State assets. Furthermore, where land is to be included in the sale, the Parliament has reserved the right approval for itself.

The Energy Law

The power sector of Mongolia is regulated under the *Energy Law of Mongolia*, enacted on January 1, 1996. This Act has most of the elements of an internationally accepted legislation of the power sector as it provides for a licensing regime, supply obligations, consumer protection as well as obligations, force majeure conditions, operational and product safety, and fines for breaching the legislation. It also provides for a State regulatory commission in principle (a competent authority) and currently this function is fulfilled by the Energy Authority.

There are two major shortcomings in the legal and regulatory framework. One is that the law is deficient in the following areas: specifying the roles and functions of a regulatory authority, including price-setting mechanisms, approving business rules of license holders, arbitration of consumers complaints, establishing the principles for restricting supply, requirements for licensees to provide information on their operations and finances, enforcing minimum (or other) cost principles, separation or union or merger of companies, reduction in the initial capital of companies, acquisition of rights-of-way for transmission and other purposes and environmental guarantee obligations. The other shortcoming is that the law contains passages that are more appropriate to regulation, such as the level of fines for non-compliance, as these monetary

amounts may change with time due to inflation necessitating revision to be made to the law. Modifying laws is always more difficult than adjusting regulations.

Even without the missing provisions, the questions as to what extent the law is enforced must be raised. As an example, although provisions (and fines) exist for non-compliance, the enforcement procedures and empowerment for the provisions is unstated. This problem is well manifested by the problems of non-payment by various customers, both large SOEs and individuals (gers), whereby collection has become the major problem of the Energy Authority (EA) jeopardizing the organization's cash flow situation. Simply, the EA does not have legal means to cut off power to customers and is furthermore under political pressure to carry these customers at its own expense. This is clearly subsidizing.

Hence, prior to the revision, all passages of the law pertinent to regulations should be removed and set aside for a Code of Regulations to be developed by the future regulatory authority. Also, all energy policy declarations needing empowerment by legal means need to be included in the new Act, that would also mandate establishing an autonomous regulatory body.

Unfair Competition Law

Distribution of electric power is a public utility function. As such it is a monopolistic activity, specifically a company (or companies) serving this field are natural monopolies. The *Law Unfair Competition* is an omnibus bill, that is, it encompasses both commercial and natural monopolies. The definition of the natural monopoly in the law is "(it) exists when a monopolistic business entity can supply a particular market with specific goods or similar goods at the lowest cost and in the most beneficial way" (Article 3). This definition is not conventional, nor is it applicable to public utilities with set pricing of their services. Instead, the definition for the power sector should be specific and should read approximately that "when, relative to the size of the market, the economies of scale are so great that only one firm can operate and supply efficiently, it is a natural monopoly". The reason for this is that duplication of services in particular area could "likely to impose a considerable cost penalty compared with the operation of a single efficient network"². Therefore, these monopolies are encouraged by the regulator to achieve efficiency and equal treatment of customers to protect the public from "abuses" of monopoly power.

Further, the State's entitlement by this Act (Article 11) to introduce "State control and the regulation of prices if a natural monopoly makes an excessive profit without reasonable justification" is also misguided and punitive. It is the State's responsibility to make rules for fair and transparent tariff regimes, establish such tariff structure by legal means and make it public, and enforce the rules through a regulatory body.

The provision of this Act on complaints about unfair competition is open ended; that is, no governmental organization has been named to receive, register and handle complaints and

² Cave, M., and Valentiny, P., 1994, Privatization and regulation of utilities in economies in transition; in: Estrin, S.(ed.), Privatization in Central and Eastern Europe, Longman Group., Ltd., Harlow, England, 69-82.

arbitrate, judge or issue fines. Material damages are subject to penalties, requiring separate court hearings but nonperformance by utilities according to contract terms is not in the purview of the law and the courts.

Modification of the natural monopolies definition and the process of dealing with cases of abrogation of responsibilities under the law should be made part of a revised energy law at least for electricity distribution (and any future natural gas distribution, but, obviously cannot cover water and sewerage services).

Regulating the Energy Sector

Currently, the function of the regulatory body is carried out by the Energy Authority. With respect to all matters except price setting, and even in this case, tendencies are that in the interest of the company the real costs are not reflected accurately in the published tariffs. Unquestionably, the combined roles of commercial activities and regulatory activities are in constant conflict; likely with the former dominating the EA as it must survive as an establishment under obligations to provide power for the country. Establishment of a separate regulatory agency, independent (or reasonably independent) authority in regulating operations, safety, price setting, licensing, etc. is highly desirable and urgent; its need has been recognized by the Government.

A regulatory framework consists of technical and economic regulations. Technical regulations pertain to the operations of the industry, such as the observance of internationally accepted codes of practice and safety of life, property and the environment. Economic regulations may either control the rate of return on the operators' assets (investments) or the prices at the interfaces between generation, transmission/dispatch and distribution (see also the discussion on tariffs). These latter regulations extend over retail prices, system charges and power purchases through power purchase agreements, contracts and other commercial arrangements. The regulatory regime of this type is called "rule-based" and is based on performance of the companies in regard to both technical standards and cost standards (several version of these being practiced in different countries, such as price cap, least-cost, rate of return, etc.). In addition, customer service regulations are commonly part of such regime. An outline of internationally acceptable regulatory roles and functions is offered in Appendix I, inasmuch as such regulations are currently not in force in Mongolia.

Modifying the Energy Law and setting up the regulatory framework now is essential, together with the means to administer the regulations. If the power industry were to be divested by the State prior to establishing an effective new regulatory body, the State runs a risk that will be reflected in the price offer for the assets. Buyers want to know what the expectations of the Government will be in terms of performance, as commonly set forth in an Energy policy, and in regard to the rights and obligations of both parties after the sale, commonly set forth by laws and regulations. Although it is possible to include covenants and conditionalities in the contract transferring the assets, these provisions will hinder the development of fully fledged regulatory roles later and will cause considerable renegotiations in the future with the power industry in private hands by then.

OVERVIEW OF THE SECTOR

The Power Sector

The power system operated by the EA consists of three detached segments, the Central Energy System (CES), the Western Energy System and the Eastern Energy System, comprised of 12 power plants and 7 distribution systems. The CES supplies power and heat to the city of Ulan Bator and to six nearby provinces (aimags), including the industrial towns of Darkhan and Erdenet, comprising 80 per cent of all the country's electricity supply. The Central System is the largest, it is based on five coal fired generating plant and it is connected to the Russian Electricity System. The other "grids" are in embryonic conditions.

Total installed capacity is 772 (plus 34 MW diesel stations) of which 540 MW is available production. In the CES, the largest network, total installed capacity is 709.5 MW, however, actual production capacity is only about 441 MW. About two thirds of the generating capacity is at the 540 MW (installed capacity) Power Station No 4 in Ulan Bator. Imports from Russia accounted for about 11% of the gross generation and 17.7% of the total demand (1997); according to the EA the former stands now at only 4%. Total annual consumption is 360 million kWh. About 35% of the total demand is by the Erdenet copper mine and the Mongolrostsvetmet (fluorspar production company). Residential demand is about 30 % of the total. Per capita consumption is high (about 1620 kWh/year).

The CES network, connected to the United Energy Systems (the network of Russia), is organized as two main branches: the transmission and distribution component, the latter of which supplies both electricity and heat with a dispatch function attached and the generation component. Five power plants comprise the *generation system*, Power Plants (PP) No. 2 (commissioned in 1961), PP No.3 (1970) and PP No.4 (1983), all in Ulan Bator, and one each at Darhan and Erdenet. The plants are the combined heat and power (CHP) types, fueled by coal, and generating both electricity and heat for industrial and domestic use. Their installed capacity is shown in the table below. Available electric power and heat capacities are about half that amount.

Table 1. Installed and available capacity of power plants in the CES (from ADB Report TA 2095 MON, 1995 updated by the EA, Sept. 1998).

Power plant	Turbine generators (MW)		Boilers (MW)		District heating (MW)		Industrial steam (MW)	
	Installed	Actual	Installed	Actual	Installed	Actual	Installed	Actual
PP2	21.5	14.4	220	180	52	30	65	na
PP3	148	85	1710	1026	640	264	163	na
PP4	540	354	3360	2016	1238	441	147	na
Total	709.5	453.4	5290	3222	1930	1188	375	143

The figures in Table 1 are generally still valid. Unused power is said now to be 268MW instead of the 256MW indicated in Table 1. Capacity cannot be attained because the system is replete with problems among which are that the original equipment installed was not new and boiler design was not optimal. Outages reduce the actual power delivery by about 14-18 percent. Use of power by the plants themselves is high: in 1994 they were reported to be 22% for PP No. 2, 28% for PP. No. 3, and 20% at PP. No.4³. Power consumption is increasing slowly, only at 1% per annum. The CES uses 22% of the gross generation for its own use during the winter and this amount is high. The remaining lifetime of the of the power plants is only 12 years with PP. No.4 possibly operating for 15 more years. The case is more acute for components of the system, based on a conventional design whereby component design lifetime is 200,000 operating hours. Based on a 11-year period (1983-1994) when PP. No. 4 operated at an average of 6138 hours annually, and assuming this rate persisted, the current total operating hours amount to 92,000 hours or 46% of the lifetime. This gives a remaining lifetime for components of 17 years (as of September, 1998), although this does not take into account the quality of the equipment, nor neglected maintenance. It is apparent to professional circles that major refurbishment must be considered in the short-term and replacement generating capacity has to be planned. The system needs rehabilitation in other areas as well, especially at substations where the Russian-made equipment is aging and is very difficult to repair for lack of spare parts.

Environmental liabilities associated with power generation are also in need of attention and funds, especially cumulative soil pollution and persistent air pollution that is worse in winter time. An assessment of the levels of past and current pollution has not been made so far.

The *transmission and distribution system* consist of 1044km of high voltage (220 kV) and 3006 km of low voltage (110 kV) and more than 4000 km 35KV power lines, 203 (35-220KV) substations and 507 km of parallel heating pipelines with diameters ranging from 50-1200 mm². The distribution system delivers power and heat to customers, namely to households, to district building management companies that operate large apartment blocks, and to industry. Annual load factors have ranged from 60 to 64%. Peak demand is just under 500 MW. However, the CES is unable to meet the daily system demand with the poor peaking capability of the essentially base-load plants and the problem is aggravated by coal supply and spare part problems. Losses in the system are also high; technical losses are in the region of 12% in distribution and about 2% in transmission (these were noted as 8% and 3.4%, respectively, in 1995³). Non-technical losses are on the order of 12%. The EA has been discussing a loan with the World Bank that would cut these losses to 16%. It would take two and half years to refurbish the distribution system.

District heating is provided from September 15 to May 15 each year. The supply temperature is 150°C and the return temperature is 70°C in the one-way heat supply line, although hot water is provided year 'round but that amounts to only 10% of the total heat delivered. The total length of the pipeline is 507 km, built in two stages. The first stage was constructed in 1990 comprising 60 percent of the total length, the second stage has been built incrementally since that time.

³ Asian Development Bank, 1995, Power system master plan, Project TA-2095 MON, Draft Final Report, vol. 2.

Several sections of the line need replacement (5-6 km segments are refurbished annually; the needed total is 20 km) but funds are not available, although losses are high. Not only pipe segments, but several of the 8 pumping stations and a majority of the 256 compensators also need repair and/or replacement. The EA is spending 15-20 million togrogs (~US\$17,000-23,000) annually to keep the pumps functioning; this not a significant amount relative to the size of the problem. Transmission losses in the system due to leakage, radiation and other causes during the 1994-1995 heating season in Ulan Bator amounted to 15% of peak capacity and 17.7% of the peak supply to customers, while losses in industrial heat delivery reach as high as 44%³. There are system load balancing problems so that customers farthest from the source receive the least heat. Similar problems exist in the distribution of heat in apartment houses. On account of poor insulation of the buildings, heat losses amount to as high as 29%⁴. The World Bank's estimate is near this figure at 30%, but the EA marks down the value to 20%. There are limited controls in the distribution system amounting to connection meters to no more than 30% of the buildings receiving heat, but pressure regulators are absent and individual connection meters or thermostats do not exist to measure consumption or allow customer to adjust the heat flow. The connection meters (where the EA's responsibility ends) allow heat delivered to the district building management companies to be metered by bulk delivery methods, however, these companies do not have the financial means to install additional control equipment in the buildings nor the will to do so as the price of heat and electricity are fixed. Similarly little interest exists among dwellers of the apartments to rectify the situation as they do not own the premises. Currently, the Asian Development Bank (ADB) is beginning to rectify this problem by installing meters in 2000 households and under a different project is installing meters at substations. However, the most needy families (some 20,000) in the "ger" districts have no prospects for meters, although a review of their non-payments indicate that they comprise less than 1% of the backlog of payments to the EA.

Coal Supply

The coal resources of Mongolia are estimated to be 152 billion tons of which 10 billion tons are proven. There are more than 200 coal deposits within 12 coal basins and in other areas of the country⁵. Deposits range from lignite to bituminous coal. Although about 70 mines produce coal country wide, sixteen coal mines comprise 97% of the total production of coal. The major suppliers of coal to the power industry are the Baga Nuur, Shivee Ovoo and Sharyn Gol mines with annual mine capacities of 4 million, 500 thousand and 1 million tons, respectively. However, production is less for reasons of antiquated infrastructure, lack of spare parts, and foremost the non-payments from the users such as the power sector. The large mines are in need of rehabilitation, and World Bank and Japanese Government loans have begun to be applied to some of the problems. Current production from all Mongolian mines amounts to approximately 5 million tons, of which power generation uses about 3.75 million tons each year. Conversely seen, coal accounts for about 35% of the end-use energy consumption (with heat and electricity

⁴ According to the District Heating Co.

⁵ Ministry of Infrastructure Development, 1998, The coal sector of Mongolia; AJM Asia Pacific Yearbook for 1997, 233-238.

at 30% and 12%, respectively, and oil products accounting for 23%). The Sharyn Gol coal, used to fuel the Darhan power plant, has higher calorific content (4200 Gcal/tons) than that of the Baga Nuur and Shivee Ovoo mines (3200 and 3100 Gcal/ton, respectively), however, its production is declining, therefore, the Government is pressing to increase production at the Shivee Ovoo mine located near the main railroad and a high voltage transmission line and supported by housing once serving the Russian military. This aim is explicit in the Government's master plan for the sector developed with the aid of the Japanese International Cooperation Agency.

The underdeveloped transportation system, both roads and railroads, limit mining of coal geographically. Each of the major mines are near rail, and all are concentrated in the north-central parts of Mongolia. Large coal resources, nevertheless, remain to be explored and exploited in Mongolia, an example of which is the Tavantolgoi field in the southern Gobi desert, whose estimated reserves are 5 to 7 billion tons of metallurgical quality cooking coal. On account of the distant location and the lack of a transportation network, this deposit slated for development with the aid of foreign investment, since at least 1990, has not generated interest to date. Production at other mines could also be improved⁶, signifying that Mongolia has ample coal resources for future industrial expansion.

The production costs of Mongolian coal is lower than world standards, yet still higher than they ought to be. It has been estimated that the price of coal in Mongolia is less than half of the price of internationally traded coal per equal calorific value. Coal deposits are shallow, making it cheap to mine, the market for coal is captive, and improvements in the cost structure could be made with better equipment and more efficient labor allocation. The mines endure large "front-end" social costs and delayed payment from industrial customers, both of which are recurring causes for cash flow problems. To illustrate the problem, the Baga Nuur mine was owed less than 2 billion togrog at the end of 1997 for coal delivered to the power plants. After the first seven months of 1998, Baga Nuur is owed some 7.2 billion togrog, that represents 60% of its sales during that period. To all coal suppliers of the country, the power plants owe some 9.8 billion togrogs (USD 11.1 million) as of September 1998⁷.

The lack of cash affects the EA more than the mines. The daily production of coal in the three mines under normal circumstances could be 11,000-12,000 tons, while the CES plants burn 14,000-16,000 tons daily during the winter time. For meeting this quantity difference the plants

⁶ Guinness Gallagher Corporate Services and the Implementation Agency for Coal (cf. Coal Authority) of Mongolia, Improvement of the organisation and effectiveness of the Mongolian coal sector; Draft report, June 1998.46 p.

⁷ Actually the debt situation represents a vicious circle involving three groups of basically government-owned services, Erdenet, the power plants and the mines. It is generally accepted that the major influencing factor behind the problem is the variation in the international price of copper (mined by Erdenet). When the price of copper is high, Erdenet, consuming about 30% of the annual power production, can afford to pay its bills on time. When copper prices are depressed (as they are now), Erdenet has cash flow problems and schedules its payments for goods and services more protractedly. This, in turn, creates cash low problems at the EA, and the EA also slows payments to the mines.

need to stock coal for the winter. Currently (September, 1998), the EA plants have less than 50% of the stockpile needed on hand. The mines' production is not expected to reach normal levels unless they receive the funds owed to them. Due to cash flow problems, their reduced overburden (rock) removal, dewatering seams, excavation and loading railcars, restrains their production and even with available funds, it would take at least a month to increase production to full operational level (monthly, Baga Nuur could extract 250,000 tons of coal and Sharyn Gol 68,000 tons).

As with many parts of the Mongolian economy, the coal sector is also undergoing ownership transformation. As many as 53 small mines have been transferred completely to private ownership; these are not significant producers (< 5000 tons production annually) and they supply only local needs of the households. Thirteen larger mines have undergone corporatization and partial privatization, whereby the State has retained a nominal 51% (factually between 49% and 90%) participation and the remaining shares had been sold to private investors by converting formerly issued vouchers to stock certificates. A portion of the shares have seen trading on the stock exchange. In addition, there are three mines operating as Mongolian-Russian joint ventures.

The Coal Authority (CA) is a Government agency under purview of the MID, and is responsible for allocating production quotas among the mines based on orders taken from customers and for purchasing coal for public use⁸. The agency administers purchase contracts with the mines (and is represented on the boards of the 70 privatized mining entities). Contracts are renewed annually. Households buy from stockpiles of the CA, although increasingly direct purchases from small mines are concluded by individual entrepreneurs. Prices of such coal are higher than the CA's price-controlled commodity. The consumer price reflects the costs of mining and transportation and a 10% surcharge by the CA covering their operational expenses. The CA, in this manner, is said to be self-supporting as Government subsidies to the Authority have been suspended two years ago.

In contrast to public consumers, the CA is not involved in purchase arrangements between the mines and the EA; the EA contracts with the mines directly. The CA's role in this case is limited to monitoring these arrangements in the role of overseeing the national supply and demand conditions. The price of coal purchased by the EA is monitored by the MID's Fuel and Energy Departments and approved by the Minister. The price of the coal from the Baganuur mine currently stands at 6000 togrog for 3500 Gcal/ton coal (used by PP. No. 4) and 4000 togrog for 4000 Gcal/ton coal from the Shivee Ovoo mine. There is a 10% VAT tax added to the price, recently introduced by the Government⁹. Transportation costs are set by the railroad; currently it stands at 5.50 togrog per ton per kilometer carriage for coal purchased by the EA.

The annual production of Mongolia's coal mine are largely slated for the power industry. About

⁸ Prices are regulated by the MID (per Decree No. 222), thus, price variations in contracts are rather restricted.

⁹ On September 1, 1998 the VAT was raised to 13%.

80% is used by the EA, the remainder by home customers. During the winter season about 290 coal cars continually transport coal to the power plants, with 900 more cars loading and in standby. The five powerplants of the CES burn 7000-8000 tons of coal daily and during the winter the daily amount rises to 14,000-16,000 tons. The maximum production of the mines is 11,200-12,000 tons daily, necessitating stockpiling by the EA.

TECHNICAL AND FINANCIAL PROBLEMS OF THE POWER SECTOR

The book value of the EA's assets are in excess of US\$ 300 million. By means of indexation an attempt was made to preserve the original figure, however, the outmoded technologies and increasing maintenance have deflated this value substantially.

The EA is a vertically integrated organization resembling a holding company for the generating and distribution operations, with control over the budget of these quasi-subsidaries, and, consequently, over the allocation of resources for maintenance, investment and other business expenditures. Because this is a budgetary allocation system based on perceived needs, it has inherent inefficiencies in assignment of resources according to real costs. In such a system operative divisions ask for as much as they can and spend what they receive. Hence, there are no incentives to cut costs as that would compromise the following period of allocation.

Until 1996, the EA was incurring losses primarily on account of the district heat supply. In 1996 tariffs were raised for electricity and heat by 60% and early 1997 by another 15%. In mid-1997, heat prices were increased by an additional 80% and electricity tariffs by 12%. From October of that year, an automatic adjustment system based on changes in fuel price and exchange rate variations was implemented. The price increases improved the financial situation of the EA, albeit temporarily only, and not to the extent that major investments for asset replacements could be considered. The 1997 preliminary figures of EA show a profit of 15.2 billion togrogs on electricity supply and a loss of 8.3 billion togrogs on heat supply¹⁰.

There are a number of reasons for the EA's financial problems. First, the EA produces energy quite inefficiently and with low productivity. For example, it employs more than 8500 people (considerable portion of it in maintenance work) for less than 500 MW generation or 709MW installed capacity. Even considering the high maintenance requirement of the aging facilities, the size of this workforce is two to three times higher than would be acceptable by international power generating companies¹¹. Although the cost of labor is low by international standards of

¹⁰ The figures should be accepted with reservations. Although the accounting system has been switched to accrual basis and a substantial modernization took place with the assistance of Arthur Andersen Consultants, the upgraded system is still to overcome primarily implementation and educational problems. Allocation of common costs is still being revised together with some administrative costs and overheads. The overall results are probably closer to break-even. In addition the indexation itself may not ensure the inclusion of "true values" for aged and discontinued assets. Furthermore the controlled input (like coal) prices could distort or hide the cost of inefficiencies.

¹¹ For example Power Station No. 4, the newest among the generating facilities, has about 1700 employees, almost twice as many as would be needed for a more up-to-date facility of similar size (540MW).

pay, locally it represents about 11% of the operating costs.

Secondly, the system's fund flow is very much dependent on the payment cycle of the (industrial) customers. There are four major categories of electricity consumers: the municipalities or aimags; the industrial customers (far the largest using over half of the total power sold); the residential consumers (with about 15-22% share of usage); and the small wholesale sector representing approximately 1-2% of consumption. It was estimated in August 1998, that for the EA's receivables of 13.5 billion togrogs, industry was responsible for about 73%, residential consumers for up to 22%, the municipalities and other public users for 5% of the total amount.

The largest industrial customer is Erdenet,¹² a large copper mine. Its power usage is more than 25-30% of the total output representing a quarter of the EA's total revenues. However, the company's finances depend on the (rather inconsistent) world price for copper, and naturally influences its handling of its payment obligations. The "erratic" payments of Erdenet had been stated as one of the main reason for the cash flow problems of the power companies. and of the coal mines. Presently Erdenet is some six months behind in paying its dues representing 5.2 billion togrogs. This is 39% of the total outstanding amount owed to the EA.

The third problem is related to the residential consumers or rather the collection method from that class of consumers. In Ulan Bator, the principal building management company owns a number of smaller building management companies that maintain apartment buildings, as well as read the meters and collect the payments from the apartment dwellers as a service for a fee. About 14% of all electricity revenues pass through these companies. These building management companies are responsible for other utility services and general maintenance, including water service, sewerage, heating related repairs, renewals and other operational matters, and they collect the charges for these as well as for electricity.

Conventionally, the payments collected from the apartment dwellers for electricity should be transferred to the EA system after a commission for the service rendered is deducted. It is alleged that the building companies, having resource constraints themselves, delay these transfers and use it for urgently needed other work. Unquestionably, there is room for tightening the payment discipline. The situation for district heating¹³ is quite similar. Tariffs for heat delivered is paid to

¹² Erdenet mining corporation, a joint venture between the Mongolian and Russian governments, is among the 10 largest copper and molybdenum mining companies in the world. In 1995 the company produced 150,000 tons of copper and copper cathodes and 2000 tons of molybdenum. The company accounts for nearly 50% of the national industrial output and most of Mongolia's foreign exchange earnings. The company employs more than 4700 people.

¹³ District heating is a critical social and political concern for the Government. The problems are multifaceted and virtually no single aspect of it, whether technical operational, organizational or financial, is free from it. The design of the system (resulting in the perpetual problem of customers having excess heat closer to the intake point or power source and insufficient heat further from the source) inadequate metering, the method of charging, the lack of funds for maintenance (of facilities within the jurisdiction of both the heat supplier and the buildings) the lack of insulation and the high heat losses combined with the inadequate basis to establish cost recovery prices, etc. present a serious problem that only sizable capital investment

the building management company which should be transferred to the district heat office after the commission is deducted.

THE TARIFF STRUCTURE

Tariff Determination

When the tariff system for power supply is based on government decisions not related to economic performance it becomes gradually distorted, inefficient, and increasingly incapable to support the needed services. To keep the system financially alive, direct, hidden and cross-subsidies are needed and generally they were abundant in the command economies under the central planning system. The retained subsidies now introduce problems on macroeconomic levels and significantly affect the financial “disintegration” of power sector companies. The Mongolian conditions reflect the same problems.

Quite clearly tariff issues merit high attention. In the long term, the only viable way to ensure the power sectors’ operation is to support it by a cost-based, market-oriented tariff structure. To develop and maintain such a structure, unambiguous policy is needed regarding the method of tariff development, the (acceptable) cost basis for it, the frequency and the methods of revisions in the light of technological and market developments, the administrative mechanism for the revisions and approvals. Naturally, transparency should characterize the system, and that should be the *modus operandi*.

A tariff reform is that part of the reform process that aims to diminish the State’s previously omnipotent role in this arena, and whose purpose is to rectify the shortcomings of the previous tariff system. In addition, tariff reform entails considerable realignment of accounting practices, review of the costs, market surveys and other tasks. Introduction of an economically supportable tariff structure almost always represents tariff level adjustments, that in countries with economies in transition results in real increase in living costs that the bulk of the population can ill afford. To lessen the impact of raising energy prices to acceptable levels suddenly, a gradualist approach to price adjustment is often employed, within a preset or targeted time frame, at the end of which period tariffs achieve full cost recovery based on the cost of services provided. The incremental approach to reaching the target(s) call for analyses of political, social and economic conditions from time to time. Provided that the mechanism is in place, including the predetermined time intervals for tariff revisions, this adjustment mechanism becomes reasonably acceptable by consumers.

The development of the new tariff system and structure would have to be built on a detailed costing system which among others would be able to depict the costs of supplying power and heat to (groups of) customers having distinctly different consumption pattern and end use for the product. The usefulness of the system is not restricted to end users. It is equally valuable to

could resolve.

managing any power sector company because it provides the necessary information to evaluate the viability and relative merits of:

- the different service (supply) propositions,
- capital investment, renewal and expansion alternatives,
- marketing strategy, and policy alternatives,
- social services (may be “lifeline” tariffs) that the enterprise is expected to implement,
- operational and consumer related safety measures

In fact, the system should provide information without which operational or business related decision could not be made in a meaningful way. For tariff design it is essential. For example, selling power should be considered as a normal business activity, which can not be sustained without full cost recovery. However, because the market is not homogeneous, the supply of power to customers does not connote identical costs because they have different consumption characteristics. To be able to develop the appropriate tariffs for the different consumers, and to recover their cost of supply through appropriate tariffs, requires clear identification of the supply costs relevant to the particular consumers and investment levels.

Power companies without exception have a group of customers whose financial position is weak due to various circumstances. Such customers are pensioners, large indigent families or unemployed, who do not have the means to pay the prevailing tariffs. Therefore, it is generally accepted that the socially disadvantaged should not be deprived of power as it is an essential need to their livelihood. In recognition of this situation, regulatory agencies may rule or utilities may volunteer for this purpose a so-called “lifeline tariff” to cover essential needs, such as for cooking and light. The tariff is applied up to nominal consumption level that may be based on the appliance mix or the number of users or the qualifications of the individuals.

Cost of Service

Development of a new tariff system with price levels and pricing structures depends on carrying out cost-of-service analyses. Such analyses, or studies *inter alia* entail:

- the review of the cost structure of the power generating, transmission, dispatch distribution and the heat supply activities, segregating fixed, variable direct and indirect costs and assigning them to distinct consumer supply activities;
- the development of the basis for the allocation of common costs to the various production and supply functions;
- the review of the market for the sector’s output and to develop a demand forecast both for energy and capacity requirements, taking into account the consumption pattern (“behavior”) of different classes of consumers;
- the development of tariff structures which would distinguish in addition to the different classes of customers (e.g. domestic and non-domestic) supplying high, medium and low voltage power, during peak and off peak supply periods and would include separate charges

for capacity and energy.

Cost Recovery

For the purpose of full cost recovery, the tariffs must reflect the capacity and operating costs of the generating, transmission and supply facilities or in other words that of the entire power and heat supply system. If that cannot be assured, while maintenance and non-replacement of aging assets are increasingly deferred, the system will gradually deteriorate and provide increasingly inferior services. Furthermore, the sector becomes a financial burden for the State, but the State cannot abandon it because ensuring provision of public services is a State obligation. In addition, to ensure that costs are recovered, tariffs should include appropriate incentives and disincentives to avoid wasteful usage of energy and to encourage savings. This in turn, is beneficial not only to the power utilities in helping them spread investments into new capacity and, thereby, assisting in their resource management, but is also beneficial to the national economy by achieving a healthier energy balance.

Since the tariffs would have to be based on costing and other, e.g., statistical information, their development and transparency is also important from the point of view of regulatory control. One of the functions of a regulatory authority would be to ensure that the power and heat companies produce (and supply) their products efficiently and generally operate in a cost-effective manner¹⁴. At the same time this provision also means that realistic and fair return is assured for the owners of the facilities with appropriate stipulations for meeting future expansion in markets with changing requirements.

Revised Tariff Structure

Tariff categories for electricity and heat and hot water commonly include classes of customers, each having different demands on the system, but within each class the type and quality of service characteristics have to be the same. The categories commonly are: industrial, commercial, institutional and household for electricity, with some large industrial customers able to obtain power, maybe directly from the generating companies under contractual agreement, thus, not subject to published tariffs.

In principle, retail tariffs are referred to as published tariffs and generally are applied to residential, commercial, industrial, and institutional (e.g. street lighting) categories. Depending on the available metering and billing system's sophistication they may distinguish among winter and summer, peak and off peak usage¹⁵. Some time the nature of the end use, type of appliances

¹⁴ It should also be ensured that through regular tariff revision mechanism the companies would be able to adjust their tariffs to compensate for real (production etc.) cost increases.

¹⁵ This would be important since the cost of the electricity is not the same if it is used during peak time. Usage in peak periods necessitates investments, which are generally underutilized, i.e., used only during the peak time, therefore, they are more costly.

connected or persons living in a dwelling metered by one meter is a proxy for more sophisticated metering.

The present tariff structure in Mongolia for power (and for heat) does not reflect either conventional classification or the cost of supplying the various classes of consumers. It is not market oriented. It has little if any incentives to encourage rational energy use, and in spite of a number of adjustments in recent years to improve cost recoveries and to eliminate distortions among different classes of customers, the residential sector is still supported by the large industrial users.

Non-residential tariffs fall into two categories. The smaller enterprises purchase power in accordance with the published tariffs. The large industrial concerns may purchase under specific contract terms, not part of the published tariffs. These contracts spell out the parameters for the envisaged purchase, the penalties for any departure from those and naturally the prices for the connection and for the power. Frequently a minimum take-or-pay formula is also used to make it absolutely sure that the cost of capacity dedicated for the supply of particular large customers will be recovered regardless of their actual power usage. Contracts may include “queuing”, i.e., the willingness of industrial users to be cut off first or early in case of overload (“brown-outs”).

With respect to published tariff schedules, there are distinct retail tariffs for domestic and non-domestic users, but due to lack of appropriate meters, only the industrial customers have distinct tariffs for peak and off-peak usage. There is only a one time connection fee for the domestic customers and their monthly bill is simply based on consumption. There are two daily peaks, one in the morning and the other, the more important one, in the evening between 6 p.m. and 10 p.m. and the latter is responding primarily to the demand by the households. During that time, industry is paying 76 togrogs/kWh. In contrast, domestic customers pay a flat fee of 33 togrogs/kWh regardless of the time of their consumption .

In Ulan Bator the households are relatively large power users, generally having electric cooking ranges, televisions, refrigerators, washing machines and dryers in addition to normal light fixtures. Most of these appliances are used in the evenings after working hours. In addition, electric radiators are widely used during the winter to augment the often inefficient district heating. In view of the residential customers load characteristics and their contribution to the build up of the peak load, it is quite clear that the present relationship between the tariff levels of the residential and industrial customers is untenable¹⁶.

District heat is not metered for individual apartments. The monthly charges lack the cost recovery principal, being different for Mongolians, foreigners, and students. They are based on the size of the premises, and vary from 60 to 90 togrogs per square meter. Enterprises pay 100 togrogs per cubic meter. Hot water for domestic usage is based on the number of persons in the dwelling but industrial use is counted in Gcal. This variation represents unequal treatment of customers and a complex administration of billing and collections. While the heating and hot

¹⁶ Time-related metering would call for sizable investments in more sophisticated meters. As proxy to that, appliance combinations (types and numbers) could be considered for tariff determination.

water supply tariffs are problematic and probably not cost based, the metering problem is probably less important than the need to upgrade the supply system itself.

Internal Tariffs or Transfer Prices

Internal tariffs or transfer prices can vary according to which structure the industry operates under. Models for these structures are discussed in a subsequent section; herein, attention is brought to only simple cases.

For a power system that is relatively small, organizational separation of distribution, transmission and generation often does not result in added economic efficiencies¹⁷. In this case, different tariffs (or transfer prices) for generation, transmission and distribution would not be warranted. The end price to the user should appropriately account for the cost of generating transmitting and distributing power and heat.

However, if for strategic or control reasons or for sector development, the corporate separation of generating transmission/dispatch and distribution functions will be deemed as logical, the overall cost recovery principle will still remain paramount. In this instance, tariff levels and structures would have to be introduced and kept up-to-date in line with the entities own cost recovery requirements for different pricing.

According to this scenario the *generating companies* will be selling their product to the transmission company. The price they ought to receive should reflect the capacity and the operating costs of the generating units involved. Probably the two companies will conclude a purchase contract specifying the (technical) supply parameters and the related costs. Whether that pricing is cost effective, should be monitored by the future regulatory body. If the prices are established for separate generating units (as they should be), they would serve as the basis for the merit dispatch¹⁸. The ideal operation of this cost control/pricing system would prevent cross subsidization (e.g., power station compensation).

A transmission company has two functions:

- buying from the generators or importing electricity and selling it to distribution companies, i.e., charging for the power and for its transport; or
- operating the transmission system and charging only for transport of electricity.¹⁹

¹⁷ In the case of a relatively small system like in Mongolia the establishment of separate distribution transmission and generating companies could result in added costs, i.e., in dis-economies. If nothing else overhead costs would increase. This, however, could be offset by greater efficiency of each of the separated entities under the proper regulatory framework, so that the sum of efficiencies could be greater than that of the original holding company (the EA).

¹⁸ The next most economic unit's production would be drawn into the grid. This is controlled by the Dispatch Center(s).

¹⁹ In this case the generating companies can sell directly to the distribution companies.

Regarding the first activity, the company has to ensure that it purchases electricity at the lowest overall cost. To be able to demonstrate this, it has to keep separate accounts for its trading and transmission activities. The aggregate of the above-mentioned contract prices gives the “bulk supply” tariffs for electricity. But for the use of the transmission system a separate charge would be made. This could take the form of connection charge (entry charges for generators and exit charges for distributors) based on the use of assets involved in the connections. The infrastructure charges are providing the network assets for transporting electricity (here the maximum demand on the system or number of units exiting the system is the charge base). When the system is properly controlled, and the transmission company is able to recover its costs and a reasonable return, the overall charges in the system should still be cost-of-service based and not increased artificially.

The *distribution companies* activity is essentially similar to that of the transmission company in the sense that they buy and sell electricity as well as distribute it through their network. The charges to customers (or retail tariffs) will basically cover all what the company had to pay to the transmission company, plus the cost of the (distribution) assets such as network, meters, connections, and operating costs such as customer services, billing, general accounting and profit margin.

PRIVATIZATION POLICY

General Concepts

Privatization of energy companies means the transfer of their ownership from the State or local authorities to individuals and/or to corporate or institutional (not State owned) entities. The State divests its ownership and by virtue of that all its direct, ownership-derived management and controlling functions. Privatization should enable the power entities to operate under normal market conditions without government interference providing all the necessary conditions for normal market operation, including sector-specific legal, banking, taxation, profit repatriation/protection provisions.

In the ex-socialist countries, the “de-nationalization” or privatization of the energy companies is a part of a broader process which is a significant element of the complete transformation of a centrally planned economic and political system to a free market economy based democratic society. Both economic and political aims govern the transformation, and the process is usually highly politicized. It is clear that even if such process would be free from political considerations, the privatization of State-owned enterprises will be a protracted process.

There could be a number of specific purposes for the privatization. These include restitution of property to previous owners, withdrawing the State from activities, which can better be performed by private entrepreneurs, or raising revenues for the treasury, and attracting needed capital (usually foreign) for specific investments, and to stimulate the economy.

The disposal of the entities entails both political and “technical” problems, that are more often than not are interrelated. To deal with the political problems, while their existence is recognized,

is not as subject of this report. The “technical” part which includes the method(s) of disposal, as well as the determination of appropriate selling prices, is addressed in the following.

Due to its strategic value, the restructuring/privatization of the energy sector is a central element of the ex-socialist countries reform process. In Mongolia, the most significant reasons are the need to modernize the sector, that is to improve its efficiency. Neither the power sector itself nor the Mongolian government has the capacity to provide the needed resources for this purpose. In fact, due to lack of resources, renewal of vital equipment is increasingly postponed and deferred maintenance both in the power sector and in the mining sector is increasing at alarming levels. Apart from the rural areas, there is no unmet demand at any significant level as yet, but the cost of power produced is increasing and the sector is “consuming” its own capital. Capital inflow is needed, as well as technical know-how from strategic investors who have the professional knowledge and management skills to operate the sector companies according to international codes and practice, and have the experience to understand and cope with the sector’s problems. The urgency for remedial actions is increasing and even if tariffs, that are deficient both in regard to structure and level, could be corrected instantly, the needed resources could not be accumulated within the required time.

The Situation in Mongolia

The Government has annunciated the general precepts for the aims and means of transforming the controlled economy to a market economy and set up the procedures for privatization of enterprises. This effort is laudable; it, however, does not address the GOM’s concepts about an industrial or energy policy, does not address what segments of the economy are set aside as strategic for reasons of national security, social policies, etc., does not it provide a policy for restructuring, and does not identify what level of ownership involvement the Government is retaining, or conversely, a schedule of extracting itself from ownership.

The GOM intends to keep a strategic interest in the power sector and currently this consists of the transmission/dispatch functions²⁰ while it will divest other operational components (generation, distribution). This concept came forth from National Security Council as an instruction to develop a plan. The EA has already prepared a background document and a provisional plan to assist the process²¹. The GOM, as represented by the Ministry of Infrastructure Development, is cognizant of the EA’s plan and has drawn up its own concepts for the restructuring phase. Restructuring as a precursor to divestiture is obviously desirable for enhancing the value of the enterprise, nonetheless, it is questionable whether all means are at the disposal of the owners, meaning the State. The GOM clearly does not have the means to undertake a thorough restructuring the EA’s finances.

Plainly, privatization of the EA by the GOM is an immediate objective to minimize further losses in the sector. There is a privatization policy in place that sets out the objectives of the

²⁰ Present thinking is to incorporate the transmission/dispatch function as State-owned company.

²¹ Energy Authority, 1998, The concepts of the development of the energy sector (manuscript).

transformation²², but it does not address unique sectors such as the power industry. The policy, should have been broader to convey the future economic expectations of the Government and to state the transformation process unambiguously. It appears, therefore, that a separate directive or legislation will be needed to proceed with this action taking these points into account.

The GOM understands that direct subsidies to the industry are not viable anymore and, in fact, have suspended those two years earlier. As reported herein, other subsidies remain. Thus, to compensate for price rises in an open and subsidy-free system, the idea is to introduce competition in the sector consequent to and as a result of privatization. This is not well defined at this stage except for the possibility for companies to import power from Russia. Furthermore, competition in tariffs is envisioned and it is difficult to judge where and how such would be implemented (except for contractual arrangements between industrial users and power companies).

The EA has also initiated steps to transform itself. The agency has divested non-essential activities, i.e., excess subsidiaries, such as service companies. To this extent, maintenance and other service functions of the company have been pared off and are operating outside the EA as independent firms with contractual ties only to their former parent. Furthermore, the State Property Committee (SPC) has completed the sale of the construction segment of the power industry. Contraction in the service industries is best when it takes place prior to offering the principal assets up because it is highly unlikely that foreign companies would invest in or carry service industries with antiquated facilities and equipment.

If the actual restructuring process will follow the EA's plan, it has sufficient merit to be considered. Review of this plan indicates that the principles of preparing for privatization are understood by the management; the mechanics may need more involvement by knowledgeable persons and the political decision-making outside the purview of the company. The plan addresses: 1) the strategic value of the power industry in the Mongolian economy, 2) the need for competition, 3) change of ownership, 4) separation of producers and consumers (removal of State express and hidden subsidies), 5) self-responsibility for the business and change in management techniques, 6) changes in regulations including price-setting based on cost of services, 7) the need for foreign capital, and 8) conversion to internationally accepted practices (operations and finances). One questionable topic is the recommendation that income derived for privatizing the EA should be used to create a fund for financing regulations and the safety and reliability of the system. Commonly, regulatory agencies derive their operational funds from licensing fees. In Mongolia, with slow growth potential of the power sector, additional licensing will not be forthcoming for some time. Hence, the funding of the operation of a regulatory body will need to find other sources.

The EA and the GOM recognize that the power industry is unlike other commercial industries. It is more strategic to a country's economic well-being, and being a non-competitive business (in most countries), services of the industry are essential. The process of restructuring, however, is a

²² The Law on State and Local Property and the Government's Resolution 160.

serious and time-consuming work. There needs to be a thorough evaluation of the company's legal, organizational, financial and business standings prior to restructuring and privatization, perhaps not only by the MID but also by the SPC. The responsible organizations need to begin a review of the demand and supply issues, consumer sensitivity to tariffs, industry capital structure, finances, operational problems, fuel quality, limitations on competitive services and attractive price offers, management approaches, and many other issues, recognizing the shortcomings. These subjects each need detailed examination both by the EA and outside experts. Results of the analyses should allow the GOM to make more informed choices about the level of strategic holdings, the future role of EA (or its successor), in energy policy objectives, imports, revenue expectations and levels of foreign investment in both the company, and potentially in allowing entry of Independent Power Producers (IPPs). This exercise has to culminate in a *privatization policy* by the GOM for this industrial sector, one that is well coordinated with an *energy policy* that governs the future behavior of the sector versus expectation by the State and the public at large.

The timetable by which to accomplish the task is very ambitious. In the absence of enabling legislation and a regulatory structure, the break up of the industry and the sale of assets may not bring the desired results.

The privatization policy of the GOM ought to depend on the most suitable model for the functioning of the industry and should guide the restructuring efforts either by the Government prior to or by private investors after sale of the assets. Although the MID has indicated its preference, a variety of other models also exist; these are described below. There are different policy issues attached to each of them and there will be different commercial arrangements as well, expressed in internal transfer prices and possibly external tariffs. The description of models is offered as a means to gauge the outcome of the restructuring and privatization effort. The models have been discussed with the MID, together with the pricing and tariff implications. The GOM's expectations need to extend further than the immediate need to resolve the financial problems of the EA and the mines. These expectations must include viability in a market economy for both industries in the long term, and they should take into account the overall energy balance, needs for rural electrification, alternative and renewable energy and potential new sources of fuel (crude oil and natural gas). Granted, the entire power system of Mongolia is rather small and growth is projected to be no more than one percent per year, yet other opportunities could arise such as in exporting power. The question must be raised early, therefore, does the Government reserve rights of this kind for itself, or will it grant the same rights to the private sector?

Models for the Power Sector

The GOM has been considering options for both ownership and for industry structure. The present analysis concentrates on only the CES; other options, naturally, occur, such as the inclusion of the Erdenet and Darhan power stations, and electricity and heat distribution components.

The main issues in reforming the power industry revolve around the following key issues:

- Security of electricity supply, i.e., enough capacity and reliability;
- Facilitating private capital formation;
- Introducing competition;
- Ease of regulatory supervision;
- Incentives for efficiency.

The most critical issue now is facilitating capital formation. However, the GOM needs to examine the other issues as well, specifically, whether it wants competition in the sector (or is willing and able to provide regulatory oversight for natural monopolies²³), whether it has promulgated transparent regulatory rules, whether it wants to promote energy savings and efficiency at the generator, distributor and consumer levels, and whether the system meets national security requirements.

Models applicable to the power industry restructuring and privatization in Mongolia are governed by local circumstances. The objects of divestiture are the generation, transmission and dispatch, electricity distribution, and heat distribution functions under the EA. Several facts are important in determining the privatization model to be used. First, the coal mines are captive suppliers of the power sector. Secondly, there are no alternate fuel sources at this time (at least until a trans-Mongolia natural gas pipeline is realized). Thirdly, the system is small in capacity. Fourthly, the system is not integrated nationwide. Finally, there is no power export potential now. These factors make for rather simple models, with variations introduced by either including or excluding the Erdenet and Darhan power plants and the associated electricity and heat distribution functions, and variations with or without the Ulan Bator district heating system.

The models described below all have two aspects in common, and these are the need to corporatize the various functional entities and remove the regulatory functions from the EA, transferring this responsibility in an updated form to an autonomous regulatory commission. There are common elements in all models: coal purchase obligations, supply obligations, least-cost price obligations and possibly third-party access obligations.

Model 1

²³ This would require review and modification of the Law on Unfair Competition, because it does not adequately address the specific rights and obligations of natural monopolies.

The State retains ownership of generation, transmission, and distribution (including heating). There is no change in the commercial activities of the EA except for corporatizing and streamlining management functions. The State-owned corporation would have a capital structure much as a private company would. However, the Government's regulatory body must define costs and their acceptable level for each power sector operation, and set up an audit procedure for the books of the EA and to monitor internal production, transmission and supply costs (internal transfer prices). The EA would function as a corporation independent of the Government, except for regulatory oversight by the State. If the EA were to be broken up into individual companies and each would be separately corporatized, there would be two effects: 1) total (combined) administrative costs would increase that would have to be reflected in consumer-level tariffs, but 2) transfer prices could be more easily monitored by the regulators. This option, of course, is not viable when the needed capital investment cannot be provided by the State as owner. However, this model, which is no more than restructuring by the owner, would make it possible to sell various subsidiaries of the EA in a step-wise manner to one or more investors. In this sense, it is a preparatory step.

Model 2

The State retains generation and transmission and privatizes the distribution of electricity (and potentially heat distribution also). In this model the State-owned company supplies power through its grid to independent distribution companies that are not owned by the State. This arrangement requires an agreement between the State-owned entity and the distribution company concerning physical operational requirements. There is little price competition in this model, because the State-owned company's costs are passed through to the distribution company. This model is not much better than Model 1 in regard to needed capital investment (most would be in generation), ease of tariff regulations, quality of supply and efficiency of the overall system.

Model 3

The State owns the transmission-dispatch functions and some of the power plants. A variation of Model 2, this would be the case when the Ulan Bator generation were owned by private investors, and any future new generation capacity by IPPs (Independent Power Producers) will be owned privately, but the Erdenet and Darkhan power plants were retained by the State. In this circumstance, however, to minimize collusion between the State-owned grid and dispatch and the (still) State-owned northern power plants, the Government should strive to corporatize the latter and establish an arms-length approach with them so that the Erdenet and Darkhan power plants function as quasi-IPPs. In this model the quality of supply and services increases on both ends of the industry spectrum, however, this arrangement still needs efficiency measures to be introduced into the transmission. The regulatory oversight may become most strained, because the intermediate grid may not be operating economically due not so much to internal losses (technical and financial) but because the non-divested power plants would not have an incentive for instilling greater efficiency and the grid would be forced to average the pass-

through costs. Providing extra capacity (or import) is available, the solution to this problem is the preferential purchase of power by the grid from cheaper producers first (the larger part of the base load) known as the merit order (assuming divergent ownership structure and power generation able to compete).

Model 4

In this model, the *State owns only the transmission-dispatch system and sells generation and distribution*. Called the "strong grid" model, the State is responsible for forecasting the demand for new generating capacity (as well as transmission capacity), planning generation capacity additions, and contracting with the generating companies to build generating capacity. The grid is also responsible for balancing the load and has an obligation to supply. The grid would also be responsible for imports²⁴. The new privately owned company may form a holding with two subsidiaries or operate the business lines separately. This model provides for more competition in generation, and depending on how many distribution companies are established, some limited competition also in the latter. It also provides the grid with a dominant role in capacity planning, yet increases the reliability and quality of supply, approximates market conditions better and reduces regulations. The regulatory function will have to be strongly effective at the generation-transmission and transmission-distribution interfaces.

Model 4A

In this case, *the State also owns only the transmission-dispatch system but alternate arrangements may be permitted between generation and distribution*. The distribution companies are responsible for planning and contracting with generation companies for new generation capacity and the transmission function works simply in a cost-recovery pass-through mode, i.e., a carrier only. This is called the "weak grid" model. A variation of this model is when large retail customers (such as large industrial companies) are permitted, if they choose to do so, to contract directly with power producers, but for others the power would flow along the existing transmission and distribution lines. However, the system-level safety (particularly reserve capacity) may not be optimal, hence, would require special regulations and arrangements such as a power pool. Likely, this would be the most attractive model for foreign investors.

Model 5

The State does not own any part of the power system, i.e., all is privatized. The regulatory aspects of this version intensify when the entire system is owned by a single company (the reverse of Model 1), because in addition to oversight of costs among each component of the system, stronger antitrust oversight also has to be provided. Greater transparency is assured if the generation, transmission and distribution companies are

²⁴ Unless there is a third-party access or similar provision in force.

operated as separate corporations as this allows the regulatory agency to gain better insight into transfer prices and less chance would occur for internal subsidies²⁵. Under such conditions, part of the sales should adhere to long-term contracts with price escalation clauses with technical supply parameters. Selling by generation companies directly to industrial customers is also applicable here.

Divestiture of the district heating system could be accomplished under any model, as long as there is incentive for the buyer and could control upstream costs of heating. However, if the district heating is attached to the electricity distribution company in the offering memorandum, it may have an adverse impacts on the bids.

Models with true IPPs (Independent Power Producers) will not be applicable until some future date and are not considered herein. However, if power plants would have to be decommissioned fully or in part and owners would not be inclined to replace their capacity fully to meet all forecasted demands, then IPPs may be a viable option to introduce at a later stage, and with this step could introduce further competition into the generating sector.

Energy and Privatization Policy Implications

The *energy policy and/or the law* will need to consider for each and every model *a priori* matters such as:

- what will happen if a private power-sector company fails;
- whether uniform tariffs are still justifiable and do they cover costs;
- whether prices reflect the capacity and operating costs and what is the composition of the costs;
- what mechanism is allowed for recovering the investment and over what period (profit margin), whether a portion of the shares should be set aside for domestic investors;
- whether municipalities should be recompensed for land and rights-of-way provided either by cash or shares;
- strong provisions and penalties for non-fulfillment of contracts;
- should there be any queuing order in case of emergencies;
- whether legal provision have made for regulating public utilities.

and other such issues customarily in the purview of a regulatory commission.

In tandem, *the privatization policy* will have to be concerned with:

- defining the main options for industry structure and ownership;
- setting the criteria by which to choose among the various models;
- understanding and dealing with the economic issues that arise under each model;

²⁵ Depending on the level of sophistication of the accounting system in each firm contrasted to the oversight powers of the regulatory body.

- setting the commercial prices between companies and other "internal prices" within a company in the electricity sector;
- deciding whether to allow other companies to have access to the network at any given time in the future (third party access).

In the long term, the foremost task is developing a flexible plan for evaluating strategic investors versus financial investors, evaluating the current or future domestic investment needs, interests and potential, various foreign investment options in parts of the energy sector. Although the domestic savings are not adequate to become involved yet, some provision could be made for future investors. Similarly, employee stock option plans can be set up for both mitigating the "shock" of transferring their place of earnings from the benign environment to a more profit oriented situation, and also as reward under employee performance plans. This aspect could be coupled to specification of which firms are considered to be strategic and for what period of time, and what this represents in terms of ownership structure and the expectations by the Government. The options need to be prioritized as the response to a tender invitation cannot always be anticipated, because buyers' motivation, current market competition, the international economy, and financing ability change from time to time.

In many countries, privatization of the energy industries were steps-wise efforts, such starting with the distribution companies, moving to generation and finally perhaps to the grid. Such approach is better warranted where the size and value of the industry is large, that is not the case in Mongolia.

For the benefit of the public at large, represented by the Government, transparency in the operations, ownership and management of energy enterprises is highly desired once the firms are sold. To achieve this, the Government must ensure that its expectations through policy, regulations and contractual terms are well formulated, and that the buyer is comfortable with all of them so as not develop a need to counter unexpected, unstated or capricious demands by the Government. Understanding rate-of-return requirements of investors is essential. The price offered is not always reflective of the buyer's commitment to invest, to assume debt, to rehabilitate physical assets. There is additional value to the economy in training of management and in technical training of employees in specialized topics, such as economic principles, accounting, financial analyses and projections, personnel management, international agreements and commercial relations, and industrial safety.

Transaction Model

While the general motive of an investor is to continuously improve its economic position, country and sector-specific conditions combined with the investors' strategic aims may not make this basic motive obvious at the time of the bidding. The existing conditions in the country, market prospects, geographical position etc. can play an important role in how intensively the investor would pursue an investment opportunity.

Strategic investors are often looking for opportunities worldwide, particularly if their own domestic opportunities to invest are restricted. However, before they commit themselves, they

have to be satisfied about the security and the (acceptable) profitability of their prospective investments. For example distribution companies as prospective investors are more interested in shorter-term profits, and in the possibility to capture additional markets. Generating companies are more interested to provide additional capacity while assuring their targeted returns. Almost all the strategic investors realize the possible synergy related advantages.²⁶

Usually investors are looking for majority ownership. Profit motive plays a role in this, but what appears to be more important for them is the assurance of overall management control. Often they are willing to pay a premium to obtain management rights. But above all the political stability, the will to privatize, the legal framework, the existence of (even if imperfect) regulatory regime, sufficiently transparent and interpretable pricing policy/mechanism and the general economical political conditions attract investors. The absence of these conditions especially combined with strange operational environs, frequently influence the price offered by the investors, and adversely so.

METHODS OF SALES AND PRICE DETERMINATION

The Method(s) of Sale

There are a number of methods to divest State ownership of power utilities. These depend, *inter alia*, on the size and the technical standard of the system, the structure of sector, the market possibilities and the extent of interest by prospective investors. The sale may cover

the entire power system; or separately the generation, transmission and distribution part of the system either simultaneously or at different times.

The actual sale may take the form of

- direct contracting with investor(s);²⁷
- limited bidding by specifically invited investors (called strategic) who are considered capable for eventually owning and operating the power companies. In this case the various condition and contractual obligations covering future operations, are likely to be negotiated with the “winner”;²⁸
- open tender preceded by pre-qualification of bidders and based on published tender documents which *inter alia* set out the conditions, performance targets etc. as minimum obligations as well as the criteria for evaluating the bids.

²⁶ As a matter of interest, financial investors are usually looking for low risk investments, naturally accepting lower returns.

²⁷ This approach usually involves specific contractual undertakings regarding performance objectives by the investor and offering him specific protection against regulatory risks.

²⁸ The bidders are free to include in their bid some obligations that they are willing to undertake and/or expect from the State. These may be considered in the bid evaluation together with the price offered, forming a “net benefit” package.

Valuation, Reserve Value, and Determination of Sales Price

Regardless the method(s) to be used, the valuation of the entities which would be sold is critical. While the final “figure” is often subject to negotiation the seller determines a minimum or reserve price²⁹ which is the minimum value of enterprise that he is willing to accept to conclude the sale. This value depends on many factors, and its calculation can be rather complicated. One of the dominant factors in this respect is the “true or market value” of the assets and of the liabilities and as a minimum they should be quantified.

The assets of income earning entities should be regularly re-valued if for no other reason than to ensure the basis for creating provisions for their replacement. In fact, if there is an appropriate accounting system in the enterprise, with depreciation, the asset values at least theoretically are kept up-to-date; allowances are made for the remaining useful life of the assets employed and these are expressed in monetary terms. However this may not give a complete or accurate picture. For example due to technical obsolescence or inflation the true value of some of the assets may be considerably less than indicated in the accounts. And even if, say constant value accounting or techno/commercial method based re-valuation implement regular asset value adjustments, the income earning capacity of the assets are not evident from the accounting records alone. As far as the values of the liabilities are concerned, basically the same principal applies.

Purely from financial point of view, when an enterprise is purchased, the buyer expects that his investment will provide acceptable income on a continuous basis. In this sense he is evaluating the value of the business i.e. the size of his investment that would be justified by acceptable return(s) in the future. While the book values of the assets and liabilities are approximation for this, other factors such as perceived market conditions, environmental considerations, none of which could be quantified by conventional accounting methods and records, also become important. A business valuation should include tangible and intangible factors such as a macro-economic forecasts, market surveys for the company’s “products”, condition of the assets, financial, legal and social liabilities, taxation, capability of incumbent management and work force, general business and operational environment. When public utilities are considered, all these are augmented by the evaluation of “regulatory risks”, which primarily considers the probability of future (primarily) government actions which would adversely affect the utility’s performance (e.g. not keeping promises regarding tariff adjustments, profit repatriation or some conditions on which privatization agreements were based). The company’s future earning potential and its business value estimated by the investor depend on all these factors.³⁰

For the seller, a similar evaluation has to be the basis for calculating the reserve price, below which it would not be worthwhile to sell. The seller also needs to take into account the value of various short medium and long-term obligations that would be avoided by virtue of the sale. As

²⁹ The definition of the reserve price herein is for the purpose of valuation only and is not the same as stated in the Government resolution 160.

³⁰ Naturally the investor evaluates, and reflects in the price offered, the anticipated political and economical developments in the country, as far as those would have an effect on the utility business performance.

an example, these would include deferred maintenance, renewals and expansionary investments, environmental and social liabilities, loan obligations, and tax gains.

Two other elements also have an impact on the value of the utility. The first one is the number of the seriously interested strategic investors who would be competing to purchase the entity. As a general rule, their larger number would indicate (and possibly result in) a higher market value, i.e. a potentially higher selling price. The second element is the possible need to restructure the power utility/company and/or the sector³¹. The purpose of restructuring is to make the sector/company's performance more effective, economical more beneficial for the customers. Naturally higher prices can be accepted if restructuring is completed, or well advanced or at least the necessary legal (and other relevant) conditions have been introduced. For large power generation, transmission and distribution systems, restructuring itself, which could be politically cumbersome, protracted and costly, almost certainly would have to be carried out by the Government, prior to privatization. However when a small system is considered, such as in Mongolia, providing that the necessary legal conditions are ensured, implementation of a restructuring program could be built into the privatization agreement. Providing the program is in line with the government's energy policy, and the implementation (by the new owner) can be effectively monitored, it may be more prudent and economical to leave the restructuring itself to the new owner. Not having the restructuring completed by the time of privatization could reduce the price during negotiation, but not necessarily significantly. If the appropriate conditions have been established, the new owner may even prefer to carry out the restructuring without outside involvement. One thing is very clear; the restructuring should be in line with the government's energy policy.

The Role of Advisors

Experience in many country shows that in developing the actual process of the privatization (the "selling phase") the assistance of internationally recognized advisors is extremely valuable. For the successful privatization it is necessary to gain the confidence of interested strategic (usually) foreign investors. To ensure this, internationally known and respected firms are conventionally retained as financial, legal and technical advisors and auditors to assist in the preparation of the information material and the tendering process. Usually they actively participate in discussion with prospective investors to ensure that the tender documents include realistic provisions for their expectations as well. The advisors are usually retained with a success fee basis, therefore they focus on achieving prices that realistically reflect the privatized entities true business value.

³¹ Restructuring could involve needed organizational arrangements, streamlining, introduction of cost and profit centers, divesting "non-profile" activities like construction, re-arrange core activities, re-organize management responsibilities and introduce new type of activities such as marketing, demand side management etc. It could also involve what is called "ownership" restructuring (e.g. corporatization) or financial restructuring where by various means the company's resources are made available to enable the entity to turn it's operation into economically acceptable and profitable.

SUMMARY

Review of the power sector of Mongolia has indicated that:

- the sector is in difficult financial condition as it has aging facilities that need replacement in the near future;
- collection of receivables is not as serious a problem (as it is due to mostly to Erdenet) as the lack of capital for rehabilitation of the system;
- Governmental or domestic sources are inadequate to comply with the scale of the problems, necessitating the invitation of foreign capital (strategic investors);
- the procedure to attract foreign capital is to issue limited or closed (invitational, pre-qualified) tenders which is preferable;
- there is interest among foreign companies in acquiring some of the assets of the Energy Authority and potentially the fuel supplying coal mines as well;
- the legal framework for foreign investment is being redrafted to meet those investors expectations;
- the GOM's intent is to restructure the EA prior to privatization and this is essentially a break-up of the organization into generation, transmission and distribution entities and incorporating them;
- financial restructuring would be left to private investors;
- the result of restructuring would leave the transmission-dispatch functions in Government ownership;
- whether a governmentally operated transmission-dispatch function will be run with proper efficiency is not certain (except in the case that a regulatory authority has the appropriate powers to effect efficiency);
- the weakest element in the privatization of the power industry is the district heating; if this component is sold with electricity distribution, it could reduce the overall price offered;
- the restructuring and privatization is lacking proper energy and privatization policies;
- the current Energy Law is deficient for treating the new issues arising after privatization;
- the tariff system must be revised to comply with the cost of service and the new commercial environment;
- the absence of a regulatory regime and a regulatory body will affect the price offered for the sale of assets, but in any case should be implemented and installed, respectively, prior to concluding the transaction.

Appendix I: Functions of a Regulatory Authority (a draft)

DRAFT LAW FOR ESTABLISHING A REGULATORY BODY FOR THE ELECTRICITY SECTOR

A. SCOPE OF REGULATION

1. Establishment of Regulatory Body (RB)

- (1) An energy Regulatory Body (RB) will be established by the Government to reinforce the operation of the market in essential energy services, and to protect the interests of consumers where natural monopolies exist.
- (2) The Government designates the Minister of (hereinafter the Minister) as the authority responsible for implementing the establishment of the RB according to this law.
- (3) The RB will be an agency of the Government for purposes of its budgetary allocation.
- (4) The Minister shall be responsible for
 - (a) implementing the energy policy for the power sector;
 - (b) promoting rational investments in the power sector;
 - (c) ensuring coherence between policies of the Government and the functions and procedures of the RB,
 - (d) approval of the tariff structure,
 - (e) ensuring allocation of energy in cases of national emergencies;
 - (f) setting rules for fuel diversity and fuel stocking;
 - (g) approvals of licenses, their modifications or revocation, and
 - (h) approval of the fees charged by the RB;
 - (i) approval of proposals for the construction of significant new baseload power facilities.
- (5) The RB will develop and publish policies, rules, regulations and procedures

according to the Laws of Mongolia for the conduct of its responsibilities set forth in this law and with the approval of the Minister.

- (6) The Minister will nominate a President for the RB for a term of five (5) years. The nomination shall be approved by the Council of Ministers and confirmed by Parliament. Upon confirmation, the Minister, in consultation with the Minister of Finance, the Minister of ... and shall appoint two Vice-Presidents for the RB for terms not exceeding five (5) years each.
- (7) The President and the Vice-Presidents may be re-appointed for one additional term not exceeding five (5) years, the President's term requiring reconfirmation by Parliament.
- (8) Prior to the end of their term of appointment, the President and Vice-Presidents may be discharged by the Minister only on grounds of incapacity, or professional, ethical or criminal misconduct, or for bringing the RB into disrepute.
- (9) The Minister will establish for this purpose a Code of Ethics by which the President, the Vice-Presidents and the employees of the RB will be bound.
- (10) The appointment and procedures of the RB are set forth in Appendix 1.

2. Consumers' representation.

- (1) The President of the RB will establish formal links with the Associations for Consumer Rights for the purpose to establish regional Electricity Consumers' Committees (RECR's) for each area served by an electricity distribution and supply company. The members and staff of the Committees will be part of the RB and their costs of operation will be borne by the RB.
- (2) The Chairman of each Committee (RECR) will be appointed by the President of the RB with the approval of the consumer organizations.
- (3) The task of the Consumers' Committees (RECR) is to advise the President on all matters connected with the generation, transmission, distribution and supply of electricity which affect the interests of electricity consumers in their areas.

3. Functions of the RB.

- (1) The RB will have the following functions:
 - (a) ensure that all reasonable demands for electricity are met;

- (b) ensure that licensees are able to finance the activities which their licenses authorize them to undertake;
 - (c) promote competitive conditions in electricity generation and supply;
 - (d) protect consumers;
 - (e) ensure safety;
 - (f) manage emergency conditions;
 - (g) set tariffs.
- (2) In carrying out these functions, RB will ensure:
- (a) that control is established, reflecting the degree of natural monopoly in the regulated activity;
 - (b) that the interests of consumers are protected in relation to the prices charged and the quality of service provided;
 - (c) that increased economic efficiency is facilitated on the part of licensees in generating, transmitting, distributing, supplying, and importing electricity;
 - (d) that appropriate actions are taken to increase the economic efficiency of energy use by licensees and consumers, along with other actions in the public interest;
 - (e) that an appropriate and coherent system of published tariffs is developed and maintained based on the least-cost approach;
 - (f) that there is no undue discrimination between comparable consumers or groups of consumers as regards the service provided or the tariffs, charges or other conditions of supply;
 - (g) that consumers are protected against anti-competitive behavior or abuse of monopoly on the part of licensees;
 - (h) that adequate service is achieved by licensees through measures including (but not necessarily limited to) the establishment of codes of practice and procedures governing:
 - the handling of consumers' complaints;
 - the reliability of supply;

- licensees' commercial relations with consumers;
- the adoption of service standards; and
- (i) that licensees are accountable to consumers and the public through the provision of information and advice, proper accounting procedures and other financial and regulatory measures.
- (j) that a plan exists for operations in emergency conditions.
- (k) that standards of operations of facilities meet national and international criteria.

B. LICENSING

4. Licensed activities

- (1) It will be an offence for anyone to generate, transmit, or distribute and supply electricity without a license issued by the RB. A lawsuit against an unlicensed operator may be brought only by the RB, with the approval of the Minister.
- (2) Licenses may authorize these activities in general, or in relation to particular plants or particular areas. The area of a distribution and supply license will be designated in the license, and may be reduced only by the award of a subsequent license to another licensee in respect of part of that area.
- (3) The RB, under a general authority issued by the Minister (which may require the RB to obtain the Minister's approval in specified cases), will:
 - (a) issue licenses for construction and for operations;
 - (b) modify or revoke licenses;
 - (c) review and authorize transfer of assets of license rights;
 - (d) approve mergers, acquisitions and divestitures;
 - (e) under certain circumstances, order the divestiture or disposal of any part of a licensees' business in the public interest and appoint a receiver to meet the obligations;
 - (f) make regulations governing;
 - the procedures for applications for licenses;

- the information to be supplied by licensees; and
 - the criteria to be employed in deciding whether to issue a license, and on what conditions.
- (g) obligate licensees to make forecasts of electricity demand for a specified number of years ahead.
- (h) develop a plan for emergency conditions and ensure that licensees and customers comply with emergency directions issued, or adhere to the merit order established.
- (4) The Minister, after consulting the RB, may direct the RB to exempt particular persons or classes of person from the requirement to hold a generation or supply license. This will not apply to anyone generating more than 20 MW for export to the public supply system, or distributing and supplying more than X kW of maximum demand Y kWh a year. For these purposes, affiliated and related companies will be treated as one.

5. Generation licenses

- (1) For the establishment of a new generation facility, the RB shall issue a preliminary license. The preliminary license shall be granted to an applicant subject to submission and acceptance of
- (a) a technical, economic and financial feasibility study,
 - (b) an environmental assessment, and
 - (c) a preliminary agreement concerning purchase of electricity.
- (2) The RB may grant a license, subject to time limitations, for construction of the facility following a public hearing, and may modify the terms and conditions as a result of such hearing. Upon commissioning of the facility, the preliminary license can be converted to a permanent license.
- (3) The RB is empowered to issue permanent licenses for the operation of power generating facilities, valid for specified duration, and subject to environmental guarantee obligations.
- (4) The RB shall require separate accounts to be prepared for the licensee's generation business, as distinct from any other business of the licensee.
- (5) Arrangements for compensation between power stations will be reviewed and

approved by the RB.

- (6) Fuel purchasing plans or proposals will be approved by the RB.
- (7) The RB shall review contractual arrangements [bulk price] to the transmission system operator.
- (8) The RB shall exercise its powers to prohibit non-approved cross-subsidies and undue discrimination.
- (9) The RB shall insure that the holder of the generating license complies with the transmission, dispatch and distribution system operating codes. Forecasts of plant availability and scheduling of maintenance shall be made available by the licensee to the transmission system operator.
- (10) The RB shall have legal powers to condemn land for purposes of providing land for the power station.
- (11) The RB shall specify in the license the nature of information and the frequency thereof to be submitted by the licensee. The type of information so requested an obtained shall be specified according to standard procedures developed by the RB.
- (12) The RB shall set the schedule of fees and obligate the licensee to pay fees for the license.
- (13) The RB shall be empowered to license direct supply for certain customers.

6. Transmission and bulk supply

- (1) In licensing networks, the RB shall proceed according to Para. 5(1) and 5(2).
- (2) In granting permanent license for transmission facilities, the RB shall proceed according to Para. 5(3). The licensee will have an exclusive right for transmission of electric energy, and for supply for designated public purposes.
- (3) The RB will require the licensee to prepare separate accounts for its businesses as transmission system operator and as buyer and seller of electricity.
- (4) Arrangements for compensation between distribution companies shall be subject to approval by the RB.
- (5) The RB shall issue rules controlling prices to distribution companies for electricity supplied and for transmission services.

- (6) The RB will publish tariffs pertinent to transmission activities. No cross-subsidy or undue discrimination shall be allowed, except under approved arrangements.
- (7) The holder of the transmission license is required to purchase electricity from the most economical (least-cost) sources, and shall require the licensee to submit plans or proposals to be approved by the RB.
- (8) The RB shall enforce obligations to meet electricity demands of distribution companies, at least cost.
- (9) The RB shall set the required standards to plan and develop the transmission system. Costs involved in the development (modernization) of the network may be included in the tariffs. The operating code of the network (grid) shall be approved by the RB.
- (10) The RB shall have legal powers to condemn land for purposes of providing rights-of-way for transmission lines.
- (11) The RB shall specify the provision of information and the frequency thereof to be supplied by the licensee.
- (12) The RB shall set the schedule of payment of license fees for transmission licensees.

7. Distribution and supply to consumers licenses

- (1) In granting permanent license for distribution and supply, the RB shall proceed according to Para. 5(3). The licensee will have an exclusive right for the distribution and supply of electric energy per terms of the license.
- (2) The RB shall require separate accounts are to be prepared for distribution/supply business, as distinct from any other business of the licensee (e.g. own generation, if any).
- (3) The RB shall ensure that no cross-subsidy between such businesses [or between the activity of operating the network and that of buying and selling electricity] exists, and no undue discrimination between comparable tariff and contract customers exists.
- (4) The RB shall develop a schedule of tariffs and their components, advertise them (public notification and/or hearing) and publish them when new tariffs adopted.
- (5) The RB shall require distribution and supply companies to purchase electricity efficiently, that is by adoption of demand management/least cost planning. Plans

or proposals for the purchase of electricity will be approved by the RB.

- (6) The RB shall have the power to obligate distributors and suppliers to purchase electricity to meet the demand and to a standard of security (for continuous supply).
- (7) The RB shall review pricing and enforce published tariffs.
- (8) The RB shall set requirements to plan, develop and implement the distribution system to a standard designated by the RB. Requirements shall include to compliance with the Grid operating code and connection agreements. The RB shall draw up plan for operations in emergency conditions, in consultation with transmission system operator, and set requirements to implement this plan by the holders of distribution and supply licenses on instructions of transmission system operator.
- (9) The RB shall draw up consumer codes, in consultation with Consumers' representatives. Consumer codes shall be published and cover:
 - payment of bills/disconnection for non-payment
 - special services for valuable groups (e.g. the elderly),
 - voluntary contributions or rebates to those on welfare.
- (10) The RB shall set requirements for licensees to meet quality of service standards.
- (11) Relations with Consumers' representative (how often/when to meet with) shall be established by the RB.
- (12) The RB shall determine the nature and timing of information to be provided by the licensees.
- (13) The RB shall set the schedule of fees and make provisions for the collection of fees from holders of distribution and supply licenses.

8. Conditions of licenses

- (1) Licenses may contain conditions including (but not necessarily limited to) those establishing or governing:
 - (a) the prices to be charged, and/or a system according to which prices and charges are to be controlled;
 - (b) the principles or structure on which tariffs and charges are to be

formulated and published;

- (c) the right on the part of licensees to obtain connection to, and use of, the transmission, interconnection, dispatch or distribution system for the transport and delivery of electricity;
- (d) the adoption of demand management/least cost planning necessary to ensure economy and efficiency on the part of licensees and consumers, including the approval of electricity and fuel purchasing plans or proposals;
- (e) approval of proposals to issue new debt or equity instruments;
- (f) uniform accounting systems for financial and regulatory reporting;
- (g) discrimination and cross-subsidy;
- (h) the ability of licensees to use certain legal powers needed to carry out their activities (e.g. to obtain rights of way and to excavate);
- (i) the approval, adoption and maintenance of codes of practice on the operation of the transmission and distribution systems;
- (j) technical standards to be met by licensees in the safety, quality and reliability of electrical supply and electrical equipment;
- (k) standards of service to be met overall and in individual cases, and compensation levels;
- (l) codes of practice to be developed, approved and maintained in relation to matters such as connection, metering, billing, disconnection and the interests of special consumer groups;
- (m) compliance with complaints procedures and relations with the Consumers or consumer representative groups;
- (n) the collection and dissemination of information and advice to consumers, e.g., on energy conservation; and
- (o) compliance with directions issued on the operation of the system in particular circumstances, e.g. emergencies.

9. Enforcement, modification and revocation of licenses

- (1) If the RB finds that a licensee is acting, or appears to be acting, in breach of its

license or other legal duties, the RB may make a temporary order enforcing compliance with the license or other necessary actions.

- (2) The licensee may then make representations to the RB that no breach has occurred, or that the breach has been or will be remedied by the licensee. If the RB is satisfied, the temporary order will lapse after [30] days.
- (3) If the licensee has not complied, or satisfied the RB that he is or was complying with the license or the temporary order, the RB may make a permanent order. This may include a proposal to modify or revoke the license. A fine may also be charged according to a scale for each separate act done in breach of the license or legal duty, according to the extent and seriousness of the default.
- (4) If compliance is not achieved to the satisfaction of the RB within [15] days, then the license is modified or revoked.
- (5) Such procedures will reference Act X on the general regulation of state administration procedures and the Civil Code (or Civil Law) and other relevant Acts.
- (6) The licensee may appeal in the appropriate courts against a permanent order or fines only on the grounds that the RB has acted unreasonably, arbitrarily or capriciously, or otherwise outside its legal powers.
- (7) No fine may be charged beyond six months from the time the RB discovers or has the default brought to its attention; or beyond two years from the committing of the default, except in cases of deliberate or fraudulent concealment.
- (8) The existence of a permanent order may be used by a complainant as grounds for seeking compensation through the Courts.
- (9) A license may be modified at any time by agreement between the RB and the licensee. A license cannot be revoked except by, or with the agreement of, the RB and with the Minister's approval.
- (10) The license enforcement and modification procedures may also be conducted if found necessary as a result of an investigation by another competent competition or monopoly authority and supported by the RB [with the Minister's approval].
- (11) A fee is payable on the grant of a license and annually thereafter. These fees can be incorporated in the tariffs and passed on to consumers.
- (12) The RB may also charge the costs of any investigation into the activities of a licensee [including those carried out by the competition and monopoly authorities] which it decides is necessary (to remedy problems arising or likely to

arise).

- (13) In each year the fees will be adjusted to compensate for any over- or under estimating of the previous year's costs incurred in regulating each licensee or group of licensees.

C. LICENSEES' AND CONSUMERS' RIGHTS AND OBLIGATIONS

10. Right to request connection/supply

- (1) The RB shall ensure and set procedures permitting Consumers to seek connection and supply in an efficient manner. These procedures shall be published.
- (2) The holder of the distribution/supply license is required to make a reasonable offer for the connection and supply.
- (3) The offer shall be made according to standard contracting terms. The RB shall review and approve the form of the standard contracts.
- (4) In case of disputes over offers, the parties shall refer to the RB for the resolution of the matter.

11. Terms and conditions of supply

- (1) The RB shall ensure that published tariff terms are offered to each consumer.
- (2) The RB shall decide cases wherein certain qualified consumers may be supplied under individual contracts, therefore, are exempt from published tariffs.
- (3) The RB shall set procedures for monitoring against undue discrimination in supply to both consumers in the same category, and to consumers of different category.
- (6) Disputes over terms and conditions (e.g. whether a tariff is appropriate for a customer) are referred to the RB for resolution.

12. Tariffs, prices and charges

- (1) The RB shall establish a system of pricing that reflect the following responsibilities of the RB:
 - (a) monitoring the prices paid to generators;
 - (b) regulating the transmission licensee's charges for connection to the

- transmission system and for use of the transmission system or the interconnections;
- (c) monitoring and, when warranted, approving the transmission licensee's overall charges for bulk electricity supplies;
 - (d) regulating the distribution and supply licensee's charges for connection to the distribution systems and for the distribution of electricity;
 - (e) regulating the distribution and supply licensees' overall charges for electricity supplied to them.
- (2) The RB will set prices and ensure that tariffs reflect costs of supply and a reasonable rate of return on assets employed, including for imported electricity. The costs shall include:
- (a) the costs reasonable investments;
 - (b) the costs of efficient operation;
 - (c) costs attendant to maintaining stand-by supplies;
 - (d) costs associated with prescribed environmental protection.
- (3) The RB will ensure that no cross-subsidies are reflected in the tariffs.
- (4) The RB shall take into account, in the formulation of tariffs, the conditions set forth by Government energy policy, economic policy, security of supplies, environmental requirements and international economic situation.
- (5) Separate and distinguishable rates shall be set for each consumer category.
- (6) The RB shall publish tariffs on a regular basis, but not less than annually. In each case of modifications to the rates, the RB shall publish the rates within 15 days of the modification, and these rates will be provisional for 30 days, which period is the time during which comments and objections can be filed with the RB (the public hearing period). Following the comment period, the RB shall publish the revised rates, if revision has taken place.
- (7) Tariffs shall be approved by Minister upon the recommendation of the RB.
- (8) Disputes on prices shall be filed with the RB. In case agreement is not reached between the complainant and the RB, the matter will be referred to the civil courts.

13. Consumer complaints

- (1) The RB shall set up a procedure for receiving, filing, tracking and handling complaints by consumers.
- (2) The RB shall consult with appropriate Consumers' representatives (registered associations) concerning the complaints.
- (3) The RB shall develop procedures of resolution to be codified and published.
- (4) Complaints procedures shall be consistent with basic provisions in Appendix 3.

14. Settlement of disputes

- (1) Any dispute that arises in connection with the rights and obligations conferred on licensees and consumers by the law, or by the regulations and licenses issued under it, may be referred to the RB for decision.
- (2) Any consumer, licensee, or other person [directly] affected may refer such disputes to the RB.
- (3) Each official decision of the RB on a dispute will be made in writing, with reasoned explanation, and be made publicly available.
- (4) Any party to a dispute may initiate lawsuit proceedings may only be brought on the grounds that the RB's decision is unreasonable, arbitrary or capricious, or otherwise outside its legal duties.

15 Safety and technical requirements.

- (1) The RB, with the approval of the Minister, shall issue regulations:
 - (a) establishing requirements to be set for the safety and continuity of electricity supply;
 - (b) setting technical standards for voltage and other electrical parameters of the system;
 - (c) requiring the use of approved meters and other electrical equipment;
 - (d) requiring licensees to comply with technical standards set by other competent authorities;

- (e) designating competent authorities for these purposes; and
- (f) requiring cooperation between licensees and the competent authorities, and among the competent authorities.

16. Information requirements.

- (1) The RB shall collect such information from licensees and other sources as it sees necessary to carry out its functions in relation to the generation, transmission, distribution and supply of electricity.
- (2) Licensees, and their affiliated and related companies, are to provide the RB with such information as it may request on either a regular or occasional basis.
- (3) The RB may also require third parties to produce documents and information necessary to enable it to carry out its functions.
- (4) Failure to produce any such documents and information may result in enforcement procedures against the licensee, or in the Courts. But no-one can be compelled to produce documents or information that they could not be compelled to produce in a Court.
- (5) The RB will publish an annual report on its activities and those of licensees, and other occasional reports on matters of public or consumer interest.
- (6) The RB may publish, or compel a licensee to publish, any material that comes into its possession, except where the RB is satisfied that disclosure would significantly damage the commercial interests of the person providing the information.

D. PLANNING AND OPERATIONAL PROVISIONS

17. Emergencies and emergency planning

- (1) With the Minister's approval, the RB will establish conditions (e.g. natural disasters, public safety grounds) in which licensees' obligations to consumers may be suspended in whole or part by a direction issued by the [Minister/RB].
- (2) For this purpose transmission, distribution and supply licensees will draw up, for the approval of the RB and the Minister, a classification of consumers who are to receive priority in the continued supply of electricity. This shall take account of special needs (e.g. hospitals).

- (3) In defined circumstances, the [Minister/RB] may direct transmission, distribution and supply licensees to operate their systems in a manner specified in the directions.
- (4) Provided the licensee acts properly in accordance with the directions issued to it, and is not negligent, no liability for compensation will arise on the part of the licensee.

18. Fuel policy

- (1) The Minister shall set the overall policy on stocking fuel or on fuel choices. The RB is responsible for overseeing that the correct fuel sources are being used.
- (2) The Minister, alternately, may direct supply licensees to contract for a minimum proportion of their power requirements from certain fuel sources.
- (3) Conversion from one type of fuel to another by a licensee must have the approval of the RB.

19. Public inquiries

- (1) If the Minister so decides, he may cause a public inquiry to be held into any matter relating to the generation, transmission or supply of electricity, including applications to construct or extend a power station or overhead line.
- (2) In such cases, the Minister will appoint an impartial person or persons to take written and oral evidence and to make public recommendations.
- (3) Criteria for the holding of public inquiries, rules of procedure and provision for meeting costs will be made by regulations.

E. MISCELLANEOUS PROVISIONS

20. Regulating reseller activities

- (1) Where electricity is distributed and sold to a consumer, who then resells it to someone who is not a customer of the distributor/seller, the RB may prescribe by regulations the maximum price per unit that can be charged.
- (2) Alternately, the RB may establish provisions for fines.

21. Budget of the RB

- (1) The budget of the RB will be fixed each year by Parliament. The RB will estimate its operating costs and apportion these to licensees by regulation. The apportionment will be according to the burden of work which the RB reasonably estimates is likely to arise from the activities of each licensee or group of licensees.
- (2) Fees charged by the RB for granting licenses shall be used to cover the operating costs of the RB.

Appendix 1

Appointments and procedures of the RB

- (1) The Minister shall consult the Cabinet of Ministers concerning the person designated as President of the RB (select or advertise the job).
- (2) The Minister shall nominate the candidate formally and obtain approval of the Cabinet.
- (3) The Cabinet shall forward the nomination to the Parliament for confirmation.
- (4) Upon confirmation, the President shall be installed by the Minister.
- (5) The Minister shall consult the designated Ministries concerning the appointment of Vice-Presidents.
- (6) The President and Vice-Presidents will be responsible for the organisation, procedures and internal operating regulations of the RB. They will maintain and publish operating codes in connection with all procedural matters affecting the interests of consumers.
- (7) It will be mandatory for all President and Vice-Presidents to comply with a code of ethics established by the Minister. The code will include, but not necessarily be limited to, the following:
 - (a) no employee of regulatory responsibility at the management level will enter employment in a utility regulated by the RB for a period of two years from leaving office as manager/regulator of the RB;
 - (b) each employee of regulatory responsibility at the management level will ensure that neither he/she, his/her spouse or children hold any financial interest in a utility regulated by the RB;
 - (c) each employee of regulatory responsibility at the management level [will disclose to the Minister] [publish] his financial interests including all sources of income, debt and equity holdings.
 - (d) no employee of regulatory responsibility at the management level will individually meet with or hold discussions with any party who has a dispute currently before the RB for decision.

Appendix II: The EA's cost structure

Items	measuring unit	1995	1996	1997
Total electricity	million kwhr	2,483.90	2,474.70	2,618.70
Own use	million kwhr	570.70	562.70	584.20
Total distributed electricity	million kwhr	1,913.20	1,912.00	2,034.50
entities	million kwhr	1,676.10	1,658.90	
households	million kwhr	237.10	253.10	
Loss	million kwhr	482.50	448.90	487.40
Total consumed electricity	million kwhr	1,430.70	1,463.10	1,547.10
Total heat distribution	thousands Gcal	5,078.10	5,002.40	4,913.00
entities	thousands Gcal	3,046.90	2,920.10	
households	thousands Gcal	2,031.20	2,082.30	
Total revenue	million tug	37,833.00	32,186.10	68,843.50
Electricity	million tug	26,501.00	24,162.70	51,023.60
Heat	million tug	10,925.30	7,378.60	13,456.60
Other	million tug	406.70	644.80	4,363.30
Total cost	million tug	38,378.80	36,600.20	58,901.00
Electricity	million tug	19,138.90	18,937.20	35,780.70
Coal	million tug	8,474.50	7,726.20	13,861.50
Wages, deduction	million tug	2,168.50	2,999.00	4,759.50
Depreciation	million tug	3,092.50	4,153.50	9,260.70
Heat	million tug	18,807.40	16,937.50	21,786.10
Coal	million tug	8,860.40	7,837.80	12,510.90
Wages, deduction	million tug	2,271.80	2,108.90	1,659.90
Depreciation	million tug	2,311.10	3,805.30	3,988.30
Other	million tug	432.50	725.50	1,334.20
Profit on electricity	million tug	7,362.10	5,225.50	15,242.90
Profit on heat	million tug	(7,882.10)	(9,558.90)	(8,329.50)
Profit on other	million tug	(25.80)	(80.70)	3,029.10
Total profit (loss)	million tug	(545.80)	(4,414.10)	9,942.50
Cash on electricity	million tug	10,454.60	9,379.00	24,503.60
Cash on heat	million tug	(5,571.00)	(5,753.60)	(4,341.20)
Cash on other	million tug	(25.80)	(80.70)	3,029.10
Total cash	million tug	4,857.80	3,544.70	23,191.50
Average price				
Electricity	tug/kwhr	18.52	16.51	32.98
Heat	tug/Gcal	2,151.45	1,475.01	2,738.98
Average cost				
Electricity	tug/kwhr	7.71	7.65	13.66
Heat	tug/Gcal	3,703.63	3,385.87	4,434.38

NOTE: The accuracy of the data
have not been verified - for
presentation purposes only

Appendix III. The current tariff structure

ELECTRICITY AND HEAT PRICE TARIFFS, MONGOLIA, JULY 1, 1997(in togrogs)

CATEGORY	UNIT	1994-1996	1997-1998	% Change
Coal price (tugrik/ton				
at Baganuur (1998.01.01)				
at Sharyngol (1998.01.01)	ton	4,800.00	6,000.00	125.00%
at Shiveeovoo (1998.01.01)	ton	6,200.00	6,800.00	109.68%
at Ulanbator	ton	3,500.00	4,000.00	114.29%
with Shiveeovoo sale point	ton	7,800.00	7,800.00	100.00%
at Erdenet	ton	6,670.00	6,670.00	100.00%
with Shiveeovoo sale point	ton	10,600.00	10,600.00	100.00%
at Darhan	ton	9,440.00	9,440.00	100.00%
with Shiveeovoo sale point	ton	10,100.00	10,100.00	100.00%
at Celengiyn	ton	9,000.00	9,000.00	100.00%
with Shiveeovoo sale point	ton	10,400.00	10,400.00	100.00%
	ton	9,200.00	9,200.00	100.00%
Electricity tariffs				
<i>Central System</i>				
Average price	kWh	31.02	33.30	107.35%
Enterprises	kWh	34.00	38.00	111.76%
Water supply	kWh	34.00	38.00	111.76%
at Dornot	kWh	53.00	53.00	100.00%
Households				
at Dornot	kWh	28.00	32.00	114.29%
at resale points	kWh	29.00	33.00	113.79%
<i>Diesel stations</i>				
Enterprises	kWh	0.00	90.00	
Households	kWh	0.00	50.00	
<i>Time-of-day tariff</i>				
from 0600 to 1700 hrs	kWh	34.00	38.00	264.71%
from 1700 to 2200 hrs	kWh	69.00	76.00	110.14%
2200 to 0600 hrs		12.00	14.00	116.67%
Average price	kWh	33.95	37.92	111.69%
	kWh			
Heat and hot water				
<i>Heat</i>				
Average price	Gcal	2,417.00		
Apartments	sq. meter	48.00	60.00	125.00%
Apartments for foreigners	sq. meter	0.00	90.00	
Students	sq. meter	0.00	90.00	
Enterprises	cu. Meter	54.00	100.00	185.19%
<i>Hot water, domestic use</i>				
in Ulan Bator	per person	67.00	100.00	149.25%

at Darhan	per person	217.00	273.00	125.81%
at Dornot	per person	240.00	251.00	104.58%
AAN	per person	0.00	321.00	
Hot water, industrial use				
in Ulan Bator	Gcal	5,100.00	8,981.00	176.10%
at Darhan	Gcal	5,100.00	8,750.00	171.57%
at Erdenet	Gcal	0.00	9,680.00	
at heating station	Gcal	0.00	11,721.00	
at thermal plant	Gcal	0.00	9,180.00	
Steam from Otvor				
in Central region	Gcal	5,000.00	8,500.00	170.00%
in Eastern region	Gcal	5,000.00	8,800.00	176.00%
Steam from ROU				
in Central region	Gcal	0.00	9,400.00	
in Eastern region	Gcal	0.00	9,400.00	
Hot water, technological use	Gcal	0.00	2,370.00	
Fuels				
mazut	ton	125.00	125.00	
diesel	ton	292.10	292.10	
Other				
Bank exchange rate		700.00	800.00	
Rail transport charge	ton-km	5.50	5.50	